Nikolaos V. Sahinidis

Curriculum Vitae

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Nikolaos V. Sahinidis

Gary C. Butler Family Chair and Professor
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I. Earned Degrees

- Aristotle University of Thessaloniki, Greece, Diploma in Chemical Engineering, 1986
- Carnegie Mellon University, Pittsburgh, PA, PhD in Chemical Engineering, 1990, advisor: Ignacio E. Grossmann

II. Employment History

- Summer Internship: Esso Chemical Complex, Thessaloniki, Greece, Summer 1985.
- Carnegie Mellon University, September 1986–August 1991:
  - Lecturer/Postdoctoral Researcher: Department of Chemical Engineering and Engineering Design Research Center, June 1990-August 1991, advisor: Ignacio E. Grossmann
  - Graduate Fellow: Department of Chemical Engineering, September 1986-May 1990, advisor: Ignacio E. Grossmann
- University of Illinois at Urbana-Champaign, August 1991–2007:
  - Professor of Chemical and Biomolecular Engineering, August 2002–2007
  - Associate Professor of Chemical Engineering, December 1997–August 2002
  - Associate Professor of Mechanical and Industrial Engineering, August 1997–December 1997
  - Assistant Professor of Mechanical and Industrial Engineering, August 1991–August 1997
  - Affiliate appointments during 1991-2007:
    - Applied Mathematics Program
    - Computational Science and Engineering Program
    - Department of Bioengineering
    - Department of Computer Science
    - Department of Industrial and Enterprise Systems Engineering
    - Department of Mechanical Science and Engineering
    - Institute for Genomic Biology
- New York University, August 1999–May 2000:
  - Visiting Associate Professor, Leonard N. Stern School of Business, Operations Management
- Carnegie Mellon University, August 2007–August 2020:
  - John E. Swearingen Professor of Chemical Engineering, January 2008–
  - Director of Center for Advanced Process Decision-making (CAPD), July 2015–June 2020
  - Affiliate appointments:
    - Computational Biology Department, September 2007–August 2020

        - Joint CMU-Pitt Ph.D. Program in Computational Biology, October 2007–August 2020
- Carnegie Mellon University, September 2020–
    - Adjunct Professor of Chemical Engineering
- Department of Energy, National Energy Technology Laboratory, January 2008–2020:
    - Faculty Research Fellow, Institute for Advanced Engineering Solutions
- Georgia Institute of Technology, August 2020–present:
    - Gary C. Butler Family Chair
    - Professor of Industrial & Systems Engineering
    - Professor of Chemical & Biomolecular Engineering
    - Affiliate appointments:
        - Algorithms, Combinatorics and Optimization Program
        - Algorithms and Randomness Center
        - Institute for Data Engineering and Science
        - Machine Learning PhD Program
        - Manufacturing Institute
        - Parker H. Petit Institute for Bioengineering and Bioscience
        - Strategic Energy Institute
        - Supply Chain and Logistics Institute

III. Honors and Awards

A. International or National Awards

- NSF CAREER Award, 1995
- NSF/Lucent Technologies Industrial Ecology Fellowship, 1998
- AIChE CAST Director's Award, 1999
- INFORMS Computing Society Prize, 2004 (jointly with Mohit Tawarmalani)
- Bayer Lecturer, Carnegie Mellon University, 2006
- Marie Curie Excellence Chair, European Commission, declined, 2006
- Beale-Orchard-Hays Prize, Mathematical Optimization Society, 2006 (jointly with Mohit Tawarmalani)
- Computing in Chemical Engineering Award, CAST Division of the AIChE, 2010
- INFORMS Fellow, 2014
- Constantin Carathéodory Prize, 2015 (jointly with Chris Floudas and Ignacio Grossmann)
- National Award and Gold Medal, Hellenic Operational Research Society, 2016
- R&D 100 award, R&D Magazine, 2016 (with DOE's CCSI toolset group)
- AIChE Fellow, 2017
- R&D 100 award, R&D World, 2020 (with DOE's IDAES PSE computational platform group)
- Elected to US National Academy of Engineering, 2022
- 2021 Best Paper Award: Computers and Chemical Engineering, awarded in 2022 (jointly with Jonggeol Na and Ji Hyun Bak)
- Asia-Pacific Artificial Intelligence Association Fellow, 2023
- Best Theory Paper Award, International Society of Global Optimization, 2023 (jointly with Yi Zhang)
- 2022 Best Paper Award, Journal of Global Optimization, awarded in 2023 (jointly with Nikolaos Ploskas)
- INFORMS Senior Member, 2024

- Wm Michael Barnes ’64 Distinguished Dialogue Series Inaugural Lecturer, Texas A&M, 2024
- Hagler Fellow, Texas A&M Hagler Institute for Advanced Study, 2024
- Rockwell Lecturer, University of Houston, 2024
- Spencer C. Schantz Distinguished Lecturer, Lehigh University, 2024

B. Internal Awards

- Listed in the *Daily Illini* “List of Teachers Ranked as Excellent by their Students” for S93, S96, F96, S99
- Center for Advanced Study Associate, University of Illinois, 2005
- University Scholar, University of Illinois, 2005-2007
- Steven J. Fenves Award, Carnegie Mellon University, 2012

C. Awards to Doctoral Students for Research under my Supervision

- INFORMS Dantzig Dissertation Award (Shabbir Ahmed, 2000)
- IUCr Poster Prize (Alex Smith, 2006)
- INFORMS Interactive Session Winner (Apurva Samudra, 2011)
- Ken Meyer Research Award (Alison Cozad, 2014)

IV. Research, Scholarship, and Creative Activities

A. Published Books, Book Chapters, and Edited Volumes

A1. Books

1. Sahinidis, N. V., *Mixed-Integer Nonlinear Programming Approaches to Planning and Scheduling Problems in the Chemical Process Industries*, PhD Thesis, Carnegie Mellon University, Pittsburgh, PA, 301 pages, 1990.
2. Tawarmalani, M. and N. V. Sahinidis, *Convexification and Global Optimization in Continuous and Mixed-Integer Nonlinear Programming: Theory, Algorithms, Software, and Applications*, Vol. 65, *Nonconvex Optimization And Its Applications* series, Kluwer Academic Publishers, Dordrecht, 504 pages, 2002.

A2. Refereed Book Chapters

1. Sahinidis, N. V. and I. E. Grossmann, Multiperiod capacity expansion for optimal design of industrial complexes, in H. Bradley (ed.), Operations Research ’90, Pergamon Press, London, 549-563, 1991.
2. Liu, M. L., N. V. Sahinidis and J. P. Shectman, Planning of chemical process networks via global concave minimization, Chapter 7, pp. 195-230, in I. E. Grossmann (ed.), Global Optimization in Engineering Design, Kluwer Academic Publishers, Dordrecht, MA, 1996.
3. Ahmed, S. and N. V. Sahinidis, Techniques in long range planning in chemical manufacturing systems, in C. T. Leondes (ed.), Computer Aided and Integrated Manufacturing Systems Techniques and Applications, Gordon and Breach International Series in Engineering, Technology and Applied Sciences, 1998.
4. Ahmed, S. and N. V. Sahinidis, Chemical process planning, in C. A. Floudas and P. M. Pardalos (eds.), Encyclopedia of Optimization, Vol. 1, 246-252, Kluwer Academic Publishers, Dordrecht, 2001.

5. Tawarmalani, M. and N. V. Sahinidis, The time-dependent traveling salesman problem, in C. A. Floudas and P. M. Pardalos (eds.), Encyclopedia of Optimization, Vol. 5, 445-450, Kluwer Academic Publishers, Dordrecht, 2001.
6. Tawarmalani, M. and N. V. Sahinidis, Exact algorithms for global optimization of mixed-integer nonlinear programs, in H. E. Romeijn and P. M. Pardalos (eds.), Handbook of Global Optimization, Vol. 2, pp. 65-85, Kluwer Academic Publishers, Dordrecht, MA, 2002.
7. Ahmed, S. and N. V. Sahinidis, Chemical process planning, in C. A. Floudas and P. M. Pardalos (eds.), Encyclopedia of Optimization, 2nd edition, Springer, pp. 369-374, 2009.
8. Xie, W. and N. V. Sahinidis, Contact map overlap maximization problem, in C. A. Floudas and P. M. Pardalos (eds.), Encyclopedia of Optimization, 2nd edition, Springer, pp. 470-475, 2009.
9. Smith, A. B. and N. V. Sahinidis, Optimization techniques for phase retrieval based on single-crystal X-ray diffraction data, in C. A. Floudas and P. M. Pardalos (eds.), Encyclopedia of Optimization, 2nd edition, Springer, pp. 2858-2863, 2009.
10. Tawarmalani, M. and N. V. Sahinidis, The time-dependent traveling salesman problem, in C. A. Floudas and P. M. Pardalos (eds.), Encyclopedia of Optimization, 2nd edition, Springer, pp. 3902-3908, 2009.
11. Rajagopalan, S. and N. V. Sahinidis, The pooling problem, in T. Terlaky, M. Anjos and S. Ahmed (eds.), Advances and Trends in Optimization with Engineering Applications, MOS-SIAM Book Series on Optimization, SIAM, Philadelphia, 2017, pp. 207-218.
12. Kılınç, M. and N. V. Sahinidis, State-of-the-art in mixed-integer nonlinear programming, in T. Terlaky, M. Anjos and S. Ahmed (eds.), Advances and Trends in Optimization with Engineering Applications, MOS-SIAM Book Series on Optimization, SIAM, Philadelphia, 2017, pp. 273-292.
13. Miller, D. C., D. A. Agarwal, D. Bhattacharyya, J. Boverhof, Y. Chen, J. C. Eslick, J. Leek, J. Ma, B. Ng, N. V. Sahinidis, C. Tong and S. E. Zitney, Innovative computational tools and models for the design, optimization and control of carbon capture processes, In A. I. Papadopoulos and P. Seferlis (eds.): Materials and Process Systems for CO2 Capture: Modelling, Design, Control and Integration, Wiley, 2017.

A3. Edited Volumes

1. Grossmann, I. E. and N. V. Sahinidis (eds.), "Special issue on mixed-integer programming and its applications to engineering. Part I," Optimization and Engineering, 3(4), 2002.
2. Grossmann, I. E. and N. V. Sahinidis (eds.), "Special issue on mixed-integer programming and its applications to engineering. Part II," Optimization and Engineering, 4(1-2), 2003.
3. Sahinidis, N. V. (ed.), Foreword: Global optimization, Optimization Methods and Software, 24, 479-482, 2009.
4. Sahinidis, N. V. (ed.), Special issue on global optimization, Optimization Methods and Software, 24(4-5), 2009.
5. Pinto, J. M. and N. V. Sahinidis (eds.), "Special issue on FOCAPO 2012," Computers & Chemical Engineering, 47, 1-268, 2012.
6. Prokopyev, O. A. and N. V. Sahinidis (eds.), "Special issue: Honoring the 60th birthday of Panos M. Pardalos," Journal of Global Optimization, 3(4), 2014.
7. Sahinidis, N. V. (ed.), Mixed-integer nonlinear programming 2018, Optimization and Engineering, 20(2), 301-306, 2019.
8. Dey, S., J. R. Luedtke and N. V. Sahinidis (Eds.), "Special issue: Global solution of integer, stochastic and nonconvex optimization problems," Mathematical Programming B, 196, 1-8, 2022.

A4. Other Parts of Books

1. Sahinidis, N. V. and I. E. Grossmann, Transshipment LP model for minimizing the utility cost in a heat exchanger network, in I. E. Grossmann (ed.): CACHE Design Case Study Volume 6: Chemical Engineering Optimization Models with GAMS, CACHE Corporation, Austin, TX, 1991.
2. Sahinidis, N. V. and I. E. Grossmann, Design of a chemical complex, in I. E. Grossmann (ed.): CACHE Design Case Study Volume 6: Chemical Engineering Optimization Models with GAMS, CACHE Corporation, Austin, TX, 1991.
3. Sahinidis, N. V. and I. E. Grossmann, Multiperiod MILP model for planning chemical processes, in I. E. Grossmann (ed.): CACHE Design Case Study Volume 6: Chemical Engineering Optimization Models with GAMS, CACHE Corporation, Austin, TX, 1991.

B. Refereed Publications and Submitted Articles

B1. Published and Accepted Journal Articles

1. Sahinidis, N. V., I. E. Grossmann, R. E. Fornari and M. Chathrathi, Optimization model for long range planning in the chemical industry, Computers & Chemical Engineering, 13, 1049-1063, 1989.
2. Sahinidis, N. V. and I. E. Grossmann, Multiperiod investment decision model for processing networks with dedicated and flexible plants, Industrial & Engineering Chemistry Research, 30, 1165-1171, 1991.
3. Sahinidis, N. V. and I. E. Grossmann, MINLP model for cyclic multiproduct scheduling on continuous parallel lines, Computers & Chemical Engineering, 15, 85-103, 1991.
4. Sahinidis, N. V. and I. E. Grossmann, Reformulation of multiperiod MILP models for planning and scheduling of chemical processes, Computers & Chemical Engineering, 15, 255-272, 1991.
5. Sahinidis, N. V. and I. E. Grossmann, Convergence properties of generalized Benders decomposition, Computers & Chemical Engineering, 15, 481-491, 1991.
6. Sahinidis, N. V. and I. E. Grossmann, Reformulation of the multiperiod MILP model for capacity expansion of chemical processes, Operations Research, 40, S127-S144, 1992.
7. Ryoo, H. S. and N. V. Sahinidis, Global optimization of nonconvex NLPs and MINLPs with applications in process design, Computers & Chemical Engineering, 19, 551-566, 1995.
8. Liu, M. L. and N. V. Sahinidis, Computational trends and effects of approximations on MILP model for process planning, Industrial & Engineering Chemistry Research, 34, 1662-1673, 1995.
9. Vander Wiel, R. J. and N. V. Sahinidis, Heuristic bounds and test problem generation for the time-dependent traveling salesman problem, Transportation Science, 29, 167-183, 1995.
10. Dorneich, M. C. and N. V. Sahinidis, Global optimization algorithms for chip layout and compaction, Engineering Optimization, 25, 131-154, 1995.
11. Liu, M. L. and N. V. Sahinidis, Long range planning in the process industries: A projection approach, Computers & Operations Research, 23, 237-253, 1996.
12. Gutierrez, R. A. and N. V. Sahinidis, A branch-and-bound approach for machine selection in just-in-time manufacturing systems, International Journal of Production Research, 34, 797-818, 1996.
13. Ryoo, H. S. and N. V. Sahinidis, A branch-and-reduce approach to global optimization, Journal of Global Optimization, 8, 107-139, 1996.
14. Sahinidis, N. V., BARON: A general purpose global optimization software package, Journal of Global Optimization, 8, 201-205, 1996. **This is a top ten most frequently cited article in the Journal of Global Optimization, which has published 3200+ articles in its history.**

15. Vander Wiel, R. J. and N. V. Sahinidis, An exact solution approach for the time-dependent traveling salesman problem, Naval Research Logistics, 43, 797-820, 1996.
16. Liu, M. L. and N. V. Sahinidis, Optimization in process planning under uncertainty, Industrial & Engineering Chemistry Research, 35, 4154-4165, 1996.
17. Van Antwerp, J. G., R. D. Braatz and N. V. Sahinidis, Globally optimal robust control for systems with nonlinear time-varying perturbations, Computers & Chemical Engineering, 21, S125-S130, 1997 (Proceedings of the 1997 *European Symposium on Computer Aided Process Engineering*).
18. Liu, M. L. and N. V. Sahinidis, Process planning in a fuzzy environment, European Journal of Operational Research, 100, 142-169, 1997.
19. Vander Wiel, R. J. and N. V. Sahinidis, The assignment problem with external interactions, Networks, 30, 171-185, 1997.
20. Liu, M. L. and N. V. Sahinidis, Bridging the gap between heuristics and optimization: The capacity expansion case, AIChE Journal, 43, 2289-2299, 1997.
21. Shectman, J. P. and N. V. Sahinidis, A finite algorithm for global minimization of separable concave programs, Journal of Global Optimization, 12, 1-36, 1998.
22. Ahmed, S. and N. V. Sahinidis, Robust process planning under uncertainty, Industrial & Engineering Chemistry Research, 37, 1883-1892, 1998.
23. VanAntwerp, J. G., R. D. Braatz and N. V. Sahinidis, Globally optimal robust control, Journal of Process Control, 9, 375-383, 1999.
24. Adhya, N., M. Tawarmalani and N. V. Sahinidis, A Lagrangian approach to the pooling problem, Industrial & Engineering Chemistry Research, 38, 1956-1972, 1999.
25. Ahmed, S., N. V. Sahinidis and E. N. Pistikopoulos, An improved decomposition algorithm for process planning under uncertainty, Computers & Chemical Engineering, 23, 1589-1604, 2000.
26. Ahmed, S. and N. V. Sahinidis, Analytical investigations of the process planning problem, Computers & Chemical Engineering, 23, 1605-1621, 2000.
27. Sahinidis, N. V. and M. Tawarmalani, Applications of global optimization to process and molecular design, Computers & Chemical Engineering, 24, 2157-2169, 2000.
28. Ryoo, H. S. and N. V. Sahinidis, Analysis of bounds for multilinear functions, Journal of Global Optimization, 19, 403-424, 2001.
29. Tawarmalani, M. and N. V. Sahinidis, Semidefinite relaxations of fractional programs via novel convexification techniques, Journal of Global Optimization, 20, 137-158, 2001.
30. Furman, K. C. and N. V. Sahinidis, Computational complexity of heat exchanger network synthesis, Computers & Chemical Engineering, 25, 1371-1390, 2001.
31. Tawarmalani, M. and N. V. Sahinidis, Convex extensions and envelopes of lower semi-continuous functions, Mathematical Programming, 93, 247-263, 2002.
32. Furman, K. C. and N. V. Sahinidis, A critical review and annotated bibliography for heat exchanger network synthesis in the 20th century, Industrial & Engineering Chemistry Research, 41(10), 2335-2370, 2002.
33. Tawarmalani, M., S. Ahmed and N. V. Sahinidis, Global optimization of 0-1 hyperbolic programs, Journal of Global Optimization, 24, 385-417, 2002.
34. Tawarmalani, M., S. Ahmed and N. V. Sahinidis, Product disaggregation and relaxations of mixed-integer rational programs, Optimization and Engineering, 3, 281-303, 2002.
35. Ahmed, S. and N. V. Sahinidis, An approximation scheme for stochastic integer programs arising in capacity expansion, Operations Research, 51, 461-471, 2003.
36. Vaia, A. and N. V. Sahinidis, Simultaneous parameter estimation and model structure determination in FTIR spectroscopy by global MINLP optimization, Computers & Chemical Engineering, 27, 763-779, 2003.
37. Ryoo, H. S. and N. V. Sahinidis, Global optimization of multiplicative programs, Journal of Global Optimization, 26, 387-418, 2003.

38. Sahinidis, N. V., M. Tawarmalani and M. Yu, Design of alternative refrigerants via global optimization, AIChE Journal, 49, 1761-1775, 2003.
39. Vaia, A. and N. V. Sahinidis, An integer programming approach to the phase problem for centrosymmetric structures, Acta Crystallographica A, 59, 452-458, 2003.
40. Furman, K. C. and N. V. Sahinidis, Approximation algorithms for the minimum number of matches problem in HENS, Industrial & Engineering Chemistry Research, 43, 3554-3565, 2004.
41. Sahinidis, N. V., Optimization under uncertainty: State-of-the-art and opportunities, Computers & Chemical Engineering, 28, 971-983, 2004. **This is a top ten most frequently cited article in Computers & Chemical Engineering, which has published 9,000+ articles in its history.**
42. Ahmed, S., M. Tawarmalani and N. V. Sahinidis, A finite branch-and-bound algorithm for two-stage stochastic integer programming, Mathematical Programming, 100, 355-377, 2004.
43. Tawarmalani, M. and N. V. Sahinidis, Global optimization of mixed-integer nonlinear programs: A theoretical and computational study, Mathematical Programming, 99, 563-591, 2004. **This is a top 20 most frequently cited article in Mathematical Programming, which has published 4500+ articles in its history.**
44. Chang, Y. and N. V. Sahinidis, Optimization of metabolic pathways under stability considerations, Computers & Chemical Engineering, Special Issue on Systems Engineering Challenges and Opportunities in Systems Biology, 29, 467-479, 2005.
45. Tawarmalani, M. and N. V. Sahinidis, A polyhedral branch-and-cut approach to global optimization, Mathematical Programming, 103, 225-249, 2005.
46. Vaia, A. and N. V. Sahinidis, Polynomial-time algorithms for the integer minimal principle for centrosymmetric structures, Acta Crystallographica A, 61, 445-452, 2005.
47. Sahinidis, N. V. and M. Tawarmalani, Accelerating branch-and-bound through a modeling language construct for relaxation-specific constraints, Journal of Global Optimization, 32, 259-280, 2005.
48. Sahinidis, N. V., M. T. Harandi, M. T. Heath, L. Murphy, M. Snir, R. P. Wheeler and C. F. Zukoski, Establishing a Master's degree program in bioinformatics: Challenges and opportunities, IEE Proceedings Systems Biology, 152, 269-275, 2005.
49. Xie, W. and N. V. Sahinidis, Residue-rotamer-reduction algorithm for the protein side-chain conformation problem, Bioinformatics, 22, 188-194, 2006.
50. Chang, Y. and N. V. Sahinidis, Global optimization in stabilizing controller design, Journal of Global Optimization, 38, 509-526, 2007.
51. Xie, W. and N. V. Sahinidis, A reduction-based exact algorithm for the contact map overlap problem, Journal of Computational Biology, 14, 637-654, 2007.
52. Naraharisetti, P. K., B. Y. S. Ong, J. W. Xie, T. K. Y. Lee, C.-H. Wang and N. V. Sahinidis, *In vivo* performance of implantable biodegradable preparations delivering Paclitaxel and Etanidazole for the treatment of glioma, Biomaterials, 28, 886-894, 2007.
53. Smith, A. B., H. Xu and N. V. Sahinidis, An integer minimal principle and triplet sieve method for phasing centrosymmetric structures, Acta Crystallographica A, 63, 164-171, 2007.
54. Ahmed, S. and N. V. Sahinidis, Selection, acquisition, and allocation of manufacturing technology in a multi-product environment, European Journal of Operational Research, 189, 807-821, 2008.
55. Xie, W. and N. V. Sahinidis, A branch-and-bound algorithm for the continuous facility layout problem, Computers & Chemical Engineering, 32, 1016-1028, 2008.
56. Xu, H., A. B. Smith, N. V. Sahinidis and C. M. Weeks, SnB version 2.3: Triplet sieve phasing for centrosymmetric structures, Journal of Applied Crystallography, 41, 644-646, 2008.

57. Ong, B. Y. S., S. H. Ranganath, L. Y. Lee, F. Lu, H.-S. Lee, N. V. Sahinidis and C.-H. Wang, Paclitaxel delivery from PLGA foams for controlled release in post-surgical chemotherapy against glioblastoma multiforme, Biomaterials, 30, 3189-3196, 2009.
58. Bao, X., N. V. Sahinidis and M. Tawarmalani, Multiterm polyhedral relaxations for nonconvex, quadratically-constrained quadratic programs, Optimization Methods and Software, 24, 485-504, 2009.
59. Sahinidis, N. V., Optimization techniques in molecular structure and function elucidation, Computers & Chemical Engineering, 33, 2055-2062, 2009.
60. Elble, J. M., N. V. Sahinidis and P. Vouzis, GPU computing with Kaczmarz's and other iterative algorithms for linear systems, Parallel Computing, 36, 215-231, 2010.
61. Rios, L. M. and N. V. Sahinidis, Portfolio optimization for wealth-dependent risk preferences, Annals of Operations Research, 177, 63-90, 2010.
62. Elble, J. M. and N. V. Sahinidis, Scaling linear programs prior to application of the simplex method, Computational Optimization and Applications, 52, 345-371, 2012.
63. Bao, X., N. V. Sahinidis and M. Tawarmalani, Semidefinite relaxations for quadratically constrained quadratic programming: A review and comparisons, Mathematical Programming, 129, 129-157, 2011.
64. Vouzis, P. and N. V. Sahinidis, GPU-BLAST: Using graphics processors to accelerate protein sequence alignment, Bioinformatics, 27, 182-188, 2011. **This was a top ten most downloaded article in Bioinformatics of 2011.**
65. Elble, J. M. and N. V. Sahinidis, A review of LU factorization in the simplex algorithm, International Journal of Mathematics in Operational Research, 4, 319-365, 2012.
66. Elble, J. M. and N. V. Sahinidis, A review of the LU update in the simplex algorithm, International Journal of Mathematics in Operational Research, 4, 366-399, 2012.
67. Khajavirad, A., J. J. Michalek and N. V. Sahinidis, Relaxations of factorable functions with convex-transformable intermediates, Mathematical Programming, 144, 107-140, 2014.
68. Chang, Y. and N. V. Sahinidis, Steady-state process optimization with guaranteed robust stability under parametric uncertainty, AIChE Journal, 57, 3395-3407, 2011.
69. Zhang, Y., P. Vouzis and N. V. Sahinidis, GPU simulations for risk assessment in CO_2 geologic sequestration, Computers & Chemical Engineering, 35, 1631-1644, 2011.
70. Khajavirad, A. and N. V. Sahinidis, Convex envelopes generated from finitely many compact convex sets, Mathematical Programming, 137, 371-408, 2013.
71. Khajavirad, A. and N. V. Sahinidis, Convex envelopes of products of convex and component-wise concave functions, Journal of Global Optimization, 52, 391-409, 2012.
72. Amaran, S. and N. V. Sahinidis, Global optimization of nonlinear least-squares problems by branch-and-bound and optimality constraints, Top, 20, 154-172, 2012.
73. Chang, Y. and N. V. Sahinidis, An integer programming approach to DNA sequence assembly, Computational Biology and Chemistry, 35, 251-258, 2011.
74. Chu, C.-W., B. E. Ydstie and N. V. Sahinidis, Optimization of IMC-PID tuning parameters for adaptive control: Part 1, Computer Aided Chemical Engineering, 29, 758-762, 2011.
75. Shah, S. B. and N. V. Sahinidis, SAS-Pro: Simultaneous residue assignment and structure superposition for protein structure alignment, PLoS ONE, 7:e37493, 2012.
76. Rios, L. M. and N. V. Sahinidis, Derivative-free optimization: A review of algorithms and comparison of software implementations, Journal of Global Optimization, 56, 1247-1293, 2013. **This is a top ten most frequently cited article in the Journal of Global Optimization, which has published 3200+ articles in its history.**
77. Zhang, Y. and N. V. Sahinidis, Uncertainty quantification in CO2 sequestration using surrogate models from polynomial chaos expansion, Industrial & Engineering Chemistry Research, 52, 3121-3132, 2013.
78. Samudra, A. and N. V. Sahinidis, Optimization-based framework for computer-aided molecular design, AIChE Journal, 59, 3686-3701, 2013.

79. Zorn, K. and N. V. Sahinidis, Global optimization of general nonconvex problems with intermediate bilinear substructures, Optimization Methods and Software, 29, 442-462, 2013.
80. Zorn, K. and N. V. Sahinidis, Computational experience with applications of bilinear cutting planes, Industrial & Engineering Chemistry Research, 52, 7514-7525, 2013.
81. Bao, X., A. Khajavirad, N. V. Sahinidis and M. Tawarmalani, Global optimization of nonconvex problems with multilinear intermediates, Mathematical Programming Computation, 7, 1-37, 2015.
82. Samudra, A. and N. V. Sahinidis, Design of heat transfer media components for retail food refrigeration, Industrial & Engineering Chemistry Research, 52, 8518-8526, 2013.
83. Khajavirad, A. and N. V. Sahinidis, A hybrid LP/NLP paradigm for global optimization relaxations, Mathematical Programming Computation, 10, 383-421, 2018.
84. Miller, D. C., M. Syamlal, D. S. Mebane, C. B. Storlie, D. Bhattacharyya, N. V. Sahinidis, D. Agarwal, C. Tong, S. E. Zitney, A. Sarkar, X. Sun, S. Sundaresan, E. M. Ryan, D. Engel and C. Dale, Carbon capture simulation initiative: A case study in multi-scale modeling and new challenges, Annual Reviews of Chemical and Biomolecular Engineering, 5, 301-323, 2014.
85. He, Y., Y. Zhang, Z.-F. Ma, N. V. Sahinidis, R. R. Tan and D. C. Y. Foo, Optimal source-sink matching in carbon capture and storage systems under uncertainty, Industrial & Engineering Chemistry Research, 53, 778-785, 2014.
86. Cozad, A., N. V. Sahinidis and D. C. Miller, Learning surrogate models for simulation-based optimization, AIChE Journal, 60, 2211-2227, 2014.
87. Zorn, K. and N. V. Sahinidis, Global optimization of general nonconvex problems with intermediate polynomial substructures, Journal of Global Optimization, 59, 673-693, 2014.
88. Zhang, Y. and N. V. Sahinidis, Global optimization of mathematical programs with complementarity constraints and application to clean energy deployment, Optimization Letters, 10, 325-340, 2016.
89. Amaran, S., N. V. Sahinidis, B. Sharda and S. J. Bury, Simulation optimization: A review of algorithms and applications, 4OR - A Quarterly Journal of Operations Research, 12, 301-333, 2014.
90. Amaran, S., N. V. Sahinidis, B. Sharda, M. Morrison, S. J. Bury, S. Miller and J. M. Wassick, Long-term turnaround planning for integrated chemical sites, Computers & Chemical Engineering, 72, 145-158, 2015.
91. Cozad, A., N. V. Sahinidis and D. C. Miller, A combined first-principles and data-driven approach to model building, Computers & Chemical Engineering, 73, 116-127, 2015.
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153. Zhang, Y. and N. V. Sahinidis, Solving continuous and discrete nonlinear programs with BARON, Computational Optimization and Applications, accepted, 2024.
154. Kuznetsov, A. and N. V. Sahinidis, Simultaneous convexification for the planar obnoxious facility location problem, Journal of Global Optimization, accepted, 2024.

B2. Conference Presentations with Proceedings (Refereed)

1. Kiparissides, C., E. Sidiropoulou, S. Voutetakis and N. V. Sahinidis, A comparative study of LQC, DMC and extended STR control strategies, Proceedings of 10th IFAC World Congress on Automatic Control, 6 pages, 1987.
2. Shectman, J. P. and N. V. Sahinidis, A finite algorithm for global minimization of separable concave programs, in C. A. Floudas and P. M. Pardalos (eds.), State of the Art in Global Optimization: Computational Methods and Applications, Kluwer Academic Publishers, Dordrecht, MA, pp. 303-340, 1996.
3. Ghildyal, V. and N. V. Sahinidis, Solving global optimization problems with BARON, in A. Migdalas, P. Pardalos and P. Varbrand (eds.), From Local to Global Optimization. A Workshop on the Occasion of the 70th Birthday of Professor Hoang Tuy, Chapter 10, pp. 205-230, Kluwer Academic Publishers, Dordrecht, 2001.
4. Sahinidis, N. V., Global optimization and constraint satisfaction: The branch-and-reduce approach, pp. 1-16 in C. Bliek, C. Jermann and A. Neumaier (eds.), *Global Optimization and Constraint Satisfaction*, Lecture Notes in Computer Science, Vol. 2861, Springer, Berlin, 2003.
5. Xie, W. and N. V. Sahinidis, A Branch-and-reduce algorithm for the contact map overlap problem, Proceedings of RECOMB 2006 (Research in Computational Molecular Biology), Lecture Notes in Bioinformatics, Vol. 3909, 516-529, Springer, 2006 (the acceptance rate at RECOMB 2006 was 18.5%).
6. Samudra, A. and N. V. Sahinidis, Design of secondary refrigerants: A combined optimization-enumeration approach, in M. M. El-Halwagi and A. A. Linninger (eds.): Proceedings of the 7th International Conference on the Foundations of Computer-Aided Process Design, CRC Press, pp. 879-886, 2009.
7. Bao, X. and N. V. Sahinidis, Finite algorithms for global minimization of separable concave programs, in T. Coleman and P. Pardalos (eds.), Workshop on Global Optimization, Fields Institute Communications, Vol. 55, American Mathematical Society, pp. 17-30, 2009.
8. Elble, J. M. and N. V. Sahinidis, Matrix binormalization on a GPU, in A. C. Elster (ed.): Proceedings of the 9th International Workshop on State-of-the-Art in Scientific and Parallel Computing, Trondheim, Norway, Lecture Notes in Computer Science, accepted in 2009 although the guest editor never forward the proceedings issue to the publisher.
9. Miller, D. C., N. V. Sahinidis, A. Cozad, A. Lee, H. Kim, J. Morinelly, J. Eslick, Z. Yuan, "Computational Tools for Accelerating Carbon Capture Process Development". In Proceedings of The 38th International Technical Conference on Clean Coal & Fuel Systems, Clearwater, FL, USA. June 2 to 6, 2013.
10. Kumaran, K., D. Papageorgiou, L. Lueg and N. V. Sahinidis, Active metric learning for supervised classification, Foundations of Process Analytics and Machine learning (FOPAM 2019).
11. Ploskas, N., Ch. Laughman, A. U. Raghunathan and N. V. Sahinidis, Heat exchanger circuitry design by decision diagrams, in L.-M. Rousseau and K. Stergiou (eds), Integration of Constraint Programming, Artificial Intelligence, and Operations Research, Lecture Notes in Computer Science, 11494, 461-471, 2019.
12. Hubbs, C., A. Kelloway, J. Wassick, N. V. Sahinidis, I. E. Grossmann, An Industrial Application of Deep Reinforcement Learning for Chemical Production Scheduling, NeurIPS

2020, The Thirty-Fourth Annual Conference on Neural Information Processing Systems, 2020.

13. Sauk, B. and N. V. Sahinidis, HybridTuner: Tuning with hybrid derivative-free optimization initialization strategies, in D. E. Simos et al. (eds.), LION 2021, Lecture Notes in Computer Science 12931, 379-393, 2021.

B3. Other Refereed Material

B4. Submitted Journal Articles

155. Ma, K. and N. V. Sahinidis, Model-and-Search: A derivative-free local optimization algorithm, Computational Optimization And Applications, submitted, 2024.
156. Zhang, Y., N. Ploskas and N. V. Sahinidis, A novel linear programming presolve technique based on Fourier-Motzkin elimination, Mathematical Programming Computation, submitted, 2024.
157. Kuznetsov, A. and N. V. Sahinidis, Nonconvex optimization problems involving the Euclidean norm: Challenges, progress, and opportunities, SIAM Review, submitted, 2024.
158. Kuznetsov, A. and N. V. Sahinidis, New bounds and formulations for the deterministic global optimization of Lennard-Jones clusters, Journal of Global Optimization, submitted, 2024.
159. Choudhary, S., S. S. Dey and N. V. Sahinidis, Water network design and operation optimization: Leveraging linear approximations, European Journal of Operational Research, submitted, 2024.
160. Strahl, W., A. Raghunathan, N. V. Sahinidis and C. E. Gounaris, Tight quadratic relaxations for global optimization: I. Outer-approximating twice-differentiable convex functions, Journal of Global Optimization, submitted, 2024.
161. Strahl, W., A. Raghunathan, N. V. Sahinidis and C. E. Gounaris, Tight quadratic relaxations for global optimization: II. Underestimating difference-of-convex (D.C.) functions, Journal of Global Optimization, submitted, 2024.
162. Kuznetsov, A. and N. V. Sahinidis, A deterministic global optimization algorithm for the Thomson and Tammes problems, Discrete Applied Mathematics, submitted, 2024.
163. Fardis, D., D. Oh, N. V. Sahinidis, A. Garciadiego and A. Lee, Surrogate modeling and optimization of the leaching process in a rare earth elements recovery plant, Computers and Chemical Engineering, submitted, 2024.
164. Zhang, Y. and N. V. Sahinidis, Learning to deactivate probing with graph convolutional network for mixed-integer nonlinear programming, Optimization Letters, submitted, 2024.

C. Other Publications and Creative Products

C1. Non-refereed Conference or Workshop Presentations with Proceedings

C2. Software and Archived Datasets

C3. Patents

C3.a. Patents Awarded

1. Raghunathan, A., D. Bergman and N. V. Sahinidis, Systems and methods for resource allocation for management systems, U.S. patent 10,362,139, April 12, 2018.

C3.b. Provisional Patents, Applications, and Invention Disclosures

C4. Other Creative Products

1. Sahinidis, N. V., "G. Infanger, Planning Under Uncertainty. Solving Large-Scale Stochastic Linear Programs," Interfaces, 25, 215-217, Sept.-October 1995. Non-refereed book review.

2. Sahinidis, N. V., "M. S. Bazaraa, H. D. Sherali and C. M. Shetty, Nonlinear Programming. Theory and Algorithms. 2nd ed.," Interfaces, 26, 141-144, Jan.-Feb. 1996. Non-refereed book review.
3. Sahinidis, N. V., "C. A. Floudas and P. M. Pardalos (eds.) State of the Art in Global Optimization. Computational methods and Applications," Optima, 52, 12-13, Dec. 1996. Non-refereed book review.
4. Sahinidis, N. V., "S. Axsater, Inventory Control," Interfaces, 32, 91-92, 2002. Non-refereed book review.
5. Sahinidis, N. V., "A. Törn and J. Žilinskas, Models and Algorithms for Global Optimization," Interfaces, 38, 155-157, 2008. Non-refereed book review.
6. Sahinidis, N. V., Announcement: Howard Rosenbrock Prize 2017, Optimization and Engineering, 19, 813-814, 2018. Editorial.
7. Sahinidis, N. V., Announcement: Howard Rosenbrock Prize 2018, Optimization and Engineering, 20, 961-962, 2019. Editorial.
8. Sahinidis, N. V., Status report for Optimization and Engineering, Optimization and Engineering, 20, 963-964, 2019. Editorial.
9. Sahinidis, N. V., Announcement: Howard Rosenbrock Prize 2019, Optimization and Engineering, 21, 707-708, 2020. Editorial.
10. Sahinidis, N. V., Announcement: Howard Rosenbrock Prize 2020, Optimization and Engineering, 22, 1979-1980, 2021. Editorial.
11. Sahinidis, N. V., Announcement: Howard Rosenbrock Prize 2021, Optimization and Engineering, 23, 1215-1216, 2022. Editorial.
12. Sahinidis, N. V., Announcement: Howard Rosenbrock Prize 2022, Optimization and Engineering, 24, 1461-1462, 2023. Editorial.

D. Presentations

D1. Keynote Addresses and Plenary Lectures

1. "Challenges in informatics: Optimization in computational biology, chemistry, and medicine," CAST Plenary, *AIChE Annual Meeting*, Indianapolis, Indiana, November 2002.
2. "Stochastic integer programming: Algorithms and applications," Plenary at *The Tenth International Conference on Stochastic Programming (SPX),* Tucson, Arizona, October 2004.
3. "Establishing a Master's degree program in bioinformatics: Challenges and opportunities," Invited plenary at *Foundations of Systems Biology and Engineering 2005 (FOSBE 2005),* Santa Barbara, California, August 2005.
4. "Optimization in the new Biology," Semi-plenary talk at *2nd Mathematical Programming Society International Conference on Continuous Optimization (ICCOPT'07) and 7th Modeling and Optimization: Theory and Applications Conference (MOPTA'07),* McMaster University, Hamilton, Canada, August 2007.
5. "Global optimization with branch-and-reduce," Plenary talk at the *5th International Conference on Computational Management Science,* Imperial College, London, United Kingdom, March 2008.
6. "Challenges in biological informatics," Plenary talk at the *100th Annual Meeting of the American Institute of Chemical Engineers,* Philadelphia, Pennsylvania, November 2008.
7. "Multi-Variate, Multi-Term, and Multi-Constraint Relaxations for Global Optimization of Nonconvex NLPs and MINLPs with BARON," Plenary talk at *Optimization 2011,* Lisbon, Portugal, July 2011.

8. "Global optimization of algebraic and black-box models," plenary talk at *American-Russian Chemical Engineering Scientific School (ARChESS-2016),* Kazan National Research Technological University, May 2016.
9. "The ALAMO approach to machine learning," plenary talk at the *5th International Symposium and 27th National Conference of the Hellenic Operational Research Society (HELORS),* Athens, Greece, June 2016.
10. "The ALAMO approach to machine learning," plenary talk at the *2016 European Symposium on Computer Aided Process Engineering (ESCAPE26),* Portorož, Slovenia, June 2016.
11. "Machine learning, ALAMO and constrained regression," plenary talk at *FOCAPO/CPC 2017*, Tucson, Arizona, January 2017.
12. "The ALAMO approach to machine learning: Best subset selection, adaptive sampling, and constrained regression," Plenary talk at *Modeling and Optimization: Theory and Applications Conference (MOPTA'17),* Lehigh University, Bethlehem, Pennsylvania, August 2017.
13. "The BARON software for MINLP," semi-plenary talk at *International Symposium on Mathematical Programming (ISMP 2018),* Bordeaux, France, July 2018.
14. "Methods and applications of deep reinforcement learning for chemical processes," Keynote at *4th Machine Learning and AI in Bio(Chemical) Engineering Conference,* University of Cambridge, England, July 2021.
15. "Data-driven optimization," Keynote at *Forum on Data Science and AI (DSAI)*, Chinese University of Hong Kong, Hong Kong, July 2022.
16. "Global black-box optimization," Keynote at *PANOPTIC 2023*, University of Florida, Gainesville, Florida, March 2023.
17. "Convexification and global optimization of problems involving the Euclidean norm," Plenary at *2024 INFORMS Optimization Society Conference (2024 IOS),* Houston, Texas, March 2024.

D2. Invited Conference and Workshop Presentations

1. "Global optimization and constraint satisfaction: The branch-and-reduce approach," *First International Workshop on Global Optimization and Constraint Satisfaction,* Valbonne—Sophia Antipolis, France, October 2002.
2. "Optimization under uncertainty: State-of-the-art and opportunities," Invited talk at *Foundations of Computer-Aided Process Operations 2003 (FOCAPO 2003),* Coral Spring, Florida, January 2003.
3. "Global optimization with branch-and-reduce," Invited at *5th Annual MOPTA Conference, Modeling and Optimization: Theory and Applications,* Windsor, Canada, July 2005.
4. "Global optimization with branch-and-reduce," Invited at *Workshop on Discrete-Continuous Optimization and Optimal Control*, Darmstadt, Germany, December 2005.
5. "Optimization techniques in molecular structure and function elucidation," Invited talk at *Foundations of Computer-Aided Process Operations 2008 (FOCAPO 2008),* Cambridge, Massachusetts, July 2008.
6. "Computing in Chemical Engineering: Three decades in the development of algorithms and software," *Computing in Chemical Engineering Award Lecture,* CAST Division of AIChE, Salt Lake City, Utah, November 2010.
7. "ALAMO: Automated Learning of Algebraic Models for Optimization," Invited tutorial at *LION8,* Gainesville, Florida, February 2014.

8. "Constraint programming for infeasibility diagnosis with BARON," Invited talk at *12th International Conference on Integration of AI and OR Techniques in Constrained Programming (CPAIOR 2015)*, Barcelona, Spain, May 2015.
9. "Learning from flowsheets," Invited talk at *Foundations of Computer-Aided Process Design 2019 (FOCAPD 2019),* Copper Mountain, Colorado, July 2019.
10. Sahinidis, N. V. Accelerating branch-and-bound in continuous global optimization, *ORSA/TIMS Annual Meeting*, Phoenix, Arizona, November 1993.
11. Sahinidis, N. V., Global optimization, *AIChE, New Jersey Section, 34th Annual Spring Symposium*, May 1994.
12. Sahinidis, N. V. and J. P. Shectman, A finite algorithm for concave minimization over polytopes, *Conference on the State of the Art in Global Optimization*, Princeton University, New Jersey, April 1995.
13. Sahinidis, N. V. and R. J. Vander Wiel, Heuristic and exact approaches to the time-dependent traveling salesman problem, *INFORMS Annual Meeting,* New Orleans, Louisiana, October 1995.
14. Sahinidis, N. V. and H. S. Ryoo, A branch-and-reduce approach to global optimization, *IFORS Fourth Specialized Conference: Operations Research and Engineering Design*, St. Louis, Montana, October 1995.
15. Shectman, J. P., M. L. Liu and N. V. Sahinidis, Chemical process planning via global concave minimization, *IFORS Fourth Specialized Conference: Operations Research and Engineering Design*, St. Louis, Montana, October 1995.
16. Gutierrez, R. A. and N. V. Sahinidis, A branch-and-bound approach to the design of just-in-time manufacturing systems, *IFORS Fourth Specialized Conference: Operations Research and Engineering Design*, St. Louis, Montana, October 1995.
17. Ryoo, H. S. and N. V. Sahinidis, Global optimization of convex multiplicative programming problems, *INFORMS Annual Meeting,* Atlanta, Georgia, November 1996.
18. Ahmed, S., M. L. Liu and N. V. Sahinidis, Optimization in process planning under uncertainty, *INFORMS Annual Meeting,* Atlanta, Georgia, November 1996.
19. Shectman, J. P. and N. V. Sahinidis, Branch-and-bound algorithms for continuous global optimization problems, *INFORMS Annual Meeting,* Atlanta, Georgia, November 1996.
20. Shectman, J. P. and N. V. Sahinidis, Finiteness issues in global optimization, *INFORMS Annual Meeting,* Dallas, Texas, October 1997.
21. Ryoo, H. S. and N. V. Sahinidis, Applications of generalized multiplicative programming and its variants, *INFORMS Annual Meeting,* Dallas, Texas, October 1997.
22. Ahmed, S. and N. V. Sahinidis, Complexity and probabilistic analysis for chemical process planning, *INFORMS Annual Meeting,* Dallas, Texas, October 1997.
23. Liu, M. L. and N. V. Sahinidis, Worst case and probabilistic analysis for a class of multiperiod MILPs, *INFORMS Annual Meeting,* San Diego, California, May 1997.
24. Adhya, N. and N. V. Sahinidis, Global optimization of blending and pooling problems, *INFORMS Annual Meeting,* San Diego, California, May 1997.
25. Ryoo, H. S. and N. V. Sahinidis, Applications of linear multiplicative programming in decision making, *INFORMS Annual Meeting,* San Diego, California, May 1997.
26. Sahinidis, N. V. Solving global optimization problems with BARON, *From Local to Global Optimization, A Workshop on the Occasion of the 70th Birthday of Professor Hoang Tuy*, Linköping Institute of Technology, Sweden, August 1997.
27. Sahinidis, N. V. Computing global solutions of nonconvex NLPs, *INFORMS Annual Meeting,* Dallas, Texas, October 1997.
28. Sahinidis, N. V. Solving large-scale global optimization problems, *Aspen World 97,* Boston, Massachusetts, October 1997.

29. Tawarmalani, M., N. Adhya and N. V. Sahinidis, Global optimization of the pooling problem, The 2nd Engineering Design Automation Conference, Maui, Hawaii, August 1998.
30. Tawarmalani, M., N. Adhya and N. V. Sahinidis, Global optimization of the pooling problem, *INFORMS Annual Meeting*, Seattle, Washington, October 1998.
31. Tawarmalani, M., S. Ahmed and N. V. Sahinidis, Convexification of fractional 0-1 programs, *INFORMS Annual Meeting*, Seattle, Washington, October 1998.
32. Shectman, J. P. and N. V. Sahinidis, Finiteness issues in global optimization, *INFORMS Annual Meeting*, Seattle, Washington, October 1998.
33. Ahmed, S. and N. V. Sahinidis, An asymptotically optimal heuristic for a multi-stage stochastic integer program, *INFORMS Annual Meeting*, Seattle, Washington, October 1998.
34. Sahinidis, N. V., Global optimization: A primer and discussion of its potential benefits, AIChE Spring National Meeting, Houston, Texas (invited tutorial), March 1999.
35. Ryoo, H. S. and N. V. Sahinidis, Generalized linear multiplicative programs and their applications, *INFORMS Annual Meeting*, Cincinnati, Ohio, May 1999.
36. Ahmed, S. and N. V. Sahinidis, An asymptotically optimal heuristic for a multi-period integer program, *INFORMS Annual Meeting*, Cincinnati, Ohio, May 1999.
37. Ahmed, S., M. Tawarmalani and N. V. Sahinidis, A finite branch-and-bound scheme for two-stage stochastic integer programs, *INFORMS Annual Meeting*, Cincinnati, Ohio, May 1999.
38. Sahinidis, N. V., Foundations of Computer Aided Process Design, Invited Panelist: Optimization Section, Breckenridge, Colorado, July 1999.
39. Sahinidis, N. V., Global optimization: Algorithms, software, and applications, Second Pan American Workshop on Process Systems Engineering, Santa Fe, Argentina, September 1999.
40. Sahinidis, N. V., Tutorial: Deterministic global optimization: Algorithms and applications, *INFORMS Annual Meeting*, Philadelphia, Pennsylvania, November 1999.
41. Tawarmalani, M. and N. V. Sahinidis, Convexification tools in integer programming, *INFORMS Annual Meeting*, Philadelphia, Pennsylvania, November 1999.
42. Shectman, J. P. and N. V. Sahinidis, Portfolio optimization via global nonconvex quadratic programming, *INFORMS Annual Meeting*, Philadelphia, Pennsylvania, November 1999.
43. Ahmed, S., M. Tawarmalani and N. V. Sahinidis, Global optimization of two-stage stochastic mixed-integer programs, *INFORMS Annual Meeting*, Philadelphia, Pennsylvania, November 1999.
44. Ahmed, S. and N. V. Sahinidis, Asymptotically optimal technology selection under uncertainty, *INFORMS Annual Meeting*, Salt Lake City, Utah, May 2000.
45. Ahmed, S., M. Tawarmalani and N. V. Sahinidis, Global optimization of two-stage stochastic programs, *INFORMS Annual Meeting*, Salt Lake City, Utah, May 2000.
46. Tawarmalani, M., S. Ahmed and N. V. Sahinidis, 0-1 hyperbolic programming, *INFORMS Annual Meeting*, Salt Lake City, Utah, May 2000.
47. Ahmed, S., M. Tawarmalani and N. V. Sahinidis, Global optimization in stochastic integer programming, *International Conference on Advances in Convex Analysis and Global Optimization Honoring the Memory of C. Carathéodory*, Samos, Greece, June 2000.
48. Tawarmalani, M. and N. V. Sahinidis, Semidefinite relaxations of fractional programs via novel techniques for constructing convex envelopes of nonlinear functions, *International Conference on Advances in Convex Analysis and Global Optimization Honoring the Memory of C. Carathéodory*, Samos, Greece, June 2000.

49. Ahmed, S., M. Tawarmalani and N. V. Sahinidis, Global optimization in stochastic integer programming, *International Symposium on Mathematical Programming*, Atlanta, Georgia, August 2000.
50. Tawarmalani, M. and N. V. Sahinidis, Semidefinite relaxations of fractional programs via novel techniques for constructing convex envelopes of nonlinear functions, *International Symposium on Mathematical Programming*, Atlanta, Georgia, August 2000.
51. Tawarmalani, M. and N. V. Sahinidis, Global optimization of mixed-integer nonlinear programs, *International Symposium on Mathematical Programming*, Atlanta, Georgia, August 2000.
52. Ahmed, S. and N. V. Sahinidis, An asymptotically optimal heuristic for capacity expansion under uncertainty, *INFORMS Annual Meeting*, San Antonio, Texas, November 2000.
53. Tawarmalani, M. and N. V. Sahinidis, Global optimization of mixed integer nonlinear programs, *INFORMS Annual Meeting*, San Antonio, Texas, November 2000.
54. Tawarmalani, M. and N. V. Sahinidis, Convexification strategies in global optimization, *INFORMS Annual Meeting*, San Antonio, Texas, November 2000.
55. Ahmed, S., M. Tawarmalani and N. V. Sahinidis, Global optimization of two-stage stochastic integer programs, *INFORMS Annual Meeting*, San Antonio, Texas, November 2000.
56. Sahinidis, N. V., Global optimization: Algorithms and applications, Gordon Research Conference on Modern Developments in Thermodynamics, Ventura, California, March 2001.
57. Sahinidis, N. V. and S. Ahmed, Supply chain design and operations under uncertainty, *AIChE Annual Meeting*, Houston, Texas, April 2001.
58. Tawarmalani, M. and N. V. Sahinidis, Domain reduction in global optimization of mixed-integer nonlinear programs, *INFORMS Annual Meeting*, Miami Beach, Florida, November 2001.
59. Tawarmalani, M. and N. V. Sahinidis, Global optimization of mixed-integer nonlinear programs, *INFORMS Annual Meeting*, Miami Beach, Florida, November 2001.
60. Tawarmalani, M. and N. V. Sahinidis, Convex envelopes of nonlinear functions, *INFORMS Annual Meeting*, Miami Beach, Florida, November 2001.
61. Sahinidis, N. V. and M. Tawarmalani, Global optimization with BARON, *INFORMS Annual Meeting*, San Jose, California, November 2002.
62. Sahinidis, N. V., Optimization under uncertainty: State-of-the-art and opportunities, Foundations of Computer Aided Process Operations Meeting, Coral Springs, Florida, January 2003.
63. Sahinidis, N. V., Global optimization in informatics, *4th International Conference on Frontiers in Global Optimization*, Santorini, Greece, June 2003.
64. Bussieck, M., L. Lasdon, N. V. Sahinidis and J. Pintér, Global optimization with GAMS—Applications and performance, *Annual International Conference of the German Operations Research Society (OR 2003)*, Heidelberg, Germany, September 2003.
65. Xie, W. and N. V. Sahinidis, Facility layout and sizing under uncertainty, *INFORMS Annual Meeting*, Atlanta, Georgia, October 2003.
66. Sahinidis, N. V. and M. Tawarmalani, A two-step procedure for convexification of lower semi-continuous functions, *INFORMS Annual Meeting*, Atlanta, Georgia, October 2003.
67. Sahinidis, N. V. and M. Tawarmalani, Global optimization with GAMS/BARON, *INFORMS Annual Meeting*, Atlanta, Georgia, October 2003.
68. Sahinidis, N. V., NSF symposium on supply chain management in process industries, Invited panelist: Research challenges and opportunities in supply chain management, University of Minnesota, Minneapolis, May 2004.

69. Sahinidis, N. V. and M. Tawarmalani, A polyhedral branch-and-cut algorithm for global optimization, *INFORMS Annual Meeting*, Denver, Colorado, October 2004.
70. Ryoo, H. and N. V. Sahinidis, Wisconsin breast cancer diagnosis via global optimization, *INFORMS Annual Meeting*, Denver, Colorado, October 2004.
71. Sahinidis, N. V., Global optimization in supply chain management, NSF Symposium on Supply Chain Management in Process Industries, University of Minnesota, Minneapolis, May 2004.
72. Sahinidis, N. V. and Y. Chang, Optimization of biochemical networks for desired dynamic characteristics, *INFORMS Annual Meeting*, Denver, Colorado, October 2004.
73. Furman, K. C., J. Wei, M. Duran, M. Tawarmalani and N. V. Sahinidis, "Global optimization for nonconvex stochastic mixed-integer nonlinear programs, *IFORS Triennial Meeting*, Honolulu, Hawaii, July 2005.
74. Sahinidis, N. V. and M. Tawarmalani, Global optimization with branch-and-reduce, *INFORMS Annual Meeting*, San Francisco, California, November 2005.
75. Xie, W. and N. V. Sahinidis, Heuristic and exact algorithms for packing discs in a minimal container circle, *INFORMS Annual Meeting*, Pittsburgh, Pennsylvania, November 2006.
76. Sahinidis, N. V. and A. B. Smith, A review of optimization techniques for phase retrieval based on single-crystal X-ray diffraction data, *2nd International Conference on Complementarity, Duality and Global Optimization in Science and Engineering*, Gainesville, Florida, March 2007.
77. Sahinidis, N. V., Global optimization with branch-and-reduce—Algorithms, Software, and Applications, *Workshop on Global Optimization*, Fields Institute, University of Toronto, Toronto, Canada, May 2007.
78. Sahinidis, N. V., Global optimization—Algorithms, Software, and Applications, *INFORMS Conference on O.R. Practice*, Vancouver, Canada, May 2007.
79. Smith, A. B. and N. V. Sahinidis, Optimization techniques for phase retrieval based on single-crystal X-ray diffraction data, *2nd International Conference on Continuous Optimization (ICCOPT'07)*, McMaster University, Hamilton, Canada, August 2007.
80. Bao, X. and N. V. Sahinidis, Automatic convexity detection for global optimization, *2nd International Conference on Continuous Optimization (ICCOPT'07)*, McMaster University, Hamilton, Canada, August 2007.
81. Smith, A. B. and N. V. Sahinidis, Optimization techniques for phase retrieval based on single-crystal X-ray diffraction data, *INFORMS Optimization Society Conference*, Atlanta, Georgia, March 2008.
82. Bao, X. and N. V. Sahinidis, Global optimization of nonconvex, quadratically-constrained quadratic programs, *INFORMS Optimization Society Conference*, Atlanta, Georgia, March 2008.
83. Rios, L. M. and N. V. Sahinidis, Algorithms and software for derivative-free optimization, *INFORMS Optimization Society Conference*, Atlanta, Georgia, March 2008.
84. Sahinidis, N. V. and M. Tawarmalani, Computational solution of MINLPs with BARON, *INFORMS Annual Meeting*, Washington, DC, October 2008.
85. Sahinidis, N. V. and M. Tawarmalani, A unifying framework for domain reduction, *INFORMS Annual Meeting*, Washington, DC, October 2008.
86. Xie, W. and N. V. Sahinidis, Protein structure alignment via contact map overlap maximization, *INFORMS Annual Meeting*, Washington, DC, October 2008.
87. Sahinidis, N. V. and L. M. Rios, Derivative-free optimization: A review, comparison of software, and two new algorithms, *Computational Management Science*, Geneva, Switzerland, May 2009.

88. Sahinidis, N. V. and M. Tawarmalani, Global optimization of MINLPs with BARON, *International Symposium on Mathematical Programming*, Chicago, Illinois, August 2009.
89. Bao, X., N. V. Sahinidis and M. Tawarmalani, Multi-term, polyhedral, relaxations of nonconvex, quadratically-constrained quadratic programs, *International Symposium on Mathematical Programming*, Chicago, Illinois, August 2009.
90. Khajavirad, A., J. Michalek and N. V. Sahinidis, Relaxations for convex-transformable functions, *International Symposium on Mathematical Programming*, Chicago, Illinois, August 2009.
91. Zorn, K. and N. V. Sahinidis, Reformulation linearization techniques: An application to quantum chemical calculations, *International Symposium on Mathematical Programming*, Chicago, Illinois, August 2009.
92. Elble, J. and N. V. Sahinidis, The computation and distribution of reduced costs in random linear programs, *INFORMS Annual Meeting*, San Diego, California, October 2009.
93. Sahinidis, N. V. and M. Tawarmalani, Global optimization of MINLPs with BARON, *INFORMS Annual Meeting*, San Diego, California, October 2009.
94. Tawarmalani, M. and N. V. Sahinidis, Exploiting multilinearity in global optimization relaxations, *INFORMS Annual Meeting*, San Diego, California, October 2009.
95. Sahinidis, N. V. and L. M. Rios, Model-and-search—A local derivative-free algorithm, *Computational Management Science 2010,* Vienna, Austria, July 2010.
96. Sahinidis, N. V. and J. Elble, The simplex algorithm—Techniques revisited and explored, *Computational Management Science 2010,* Vienna, Austria, July 2010.
97. Khajavirad, A., J. Michalek and N. V. Sahinidis, Relaxations of factorable functions with convex-transformable intermediates, *INFORMS Annual Meeting,* Austin, Texas, November 2010.
98. Khajavirad, A. and N. V. Sahinidis, Convex envelopes of lower semi-continuous functions generated by finite number of compact convex sets, *INFORMS Annual Meeting,* Austin, Texas, November 2010.
99. Elble, J., N. V. Sahinidis and P. Vouzis, GPU computing with Kaczmarz's and other iterative algorithms for linear systems, *INFORMS Annual Meeting,* Austin, Texas, November 2010.
100. Vouzis, P. and N. V. Sahinidis, A GPU implementation of BLAST, *INFORMS Annual Meeting,* Austin, Texas, November 2010.
101. Cozad, A. and N. V. Sahinidis, Using derivative-free algorithms to identify surrogate models of energy systems, SIAM Conference on Computational Science and Engineering (CSE11), Reno, Nevada, March, 2011.
102. Khajavirad, A. and N. V. Sahinidis, Convexity exploitation in global optimization, *INFORMS Annual Meeting,* Charlotte, North Carolina, November 2011.
103. Cozad, A. and N. V. Sahinidis, Derivative-free optimization enhanced-surrogate models for energy systems optimization, *INFORMS Annual Meeting,* Charlotte, North Carolina, November 2011.
104. Sahinidis, N. V., M. Tawarmalani, X. Bao, A. Khajavirad and K. Zorn, Multi-variate, multi-term, and multi-constraint relaxations for global optimization with BARON, *INFORMS Annual Meeting,* Charlotte, North Carolina, November 2011.
105. Sahinidis, N. V. and L. M. Rios, A comparison of software implementations of derivative-free optimization algorithms, *INFORMS Annual Meeting,* Charlotte, North Carolina, November 2011.
106. Amaran, S. and N. V. Sahinidis, Global optimization of surrogate approximations in derivative-free optimization, *INFORMS Annual Meeting,* Charlotte, North Carolina, November 2011.

107. Zorn, K. and N. V. Sahinidis, Reformulation-linearization techniques: Enhancing BARON's relaxations for polynomial programs, *INFORMS Annual Meeting,* Charlotte, North Carolina, November 2011.
108. Sahinidis, N. V., A. Cozad and D. C. Miller, Derivative-Free Optimization Enhanced-Surrogate Models for Energy Systems Optimization, 9th International Conference on Computational Management Science (CMS 2012), Imperial College, London, U.K., 19-20 April 2012.
109. Sahinidis, N. V., Applications of optimization to industrial problems, *2nd Annual Energy & Innovation Conference*, Pittsburgh, Pennsylvania, November 2012.
110. Puranik, Y. and N. V. Sahinidis, Stronger relaxations using optimality constraints for global optimization of unconstrained NLPs, *INFORMS Annual Meeting,* Phoenix, Arizona, October 2012.
111. Khajavirad, A., X. Bao, N. V. Sahinidis and M. Tawarmalani, Global optimization of nonconvex problems with multilinear intermediates, *INFORMS Annual Meeting,* Phoenix, Arizona, October 2012.
112. Khajavirad, A. and N. V. Sahinidis, Exploiting convexity in global optimization, *INFORMS Annual Meeting,* Phoenix, Arizona, October 2012.
113. Sahinidis, N. V., Solving nonconvex NLPs and MINLPs with BARON, *INFORMS Annual Meeting,* Phoenix, Arizona, October 2012.
114. Sahinidis, N. V., A. Cozad and D. C. Miller, Derivative-free optimization enhanced-surrogate model development for optimization, *INFORMS Annual Meeting,* Phoenix, Arizona, October 2012.
115. Sahinidis, N. V., Large-scale simulation-optimization with ALAMO and BARON, MINLP Workshop, Paris, France, September 2013.
116. Chen, T., P. Vouzis and N. V. Sahinidis, Biological sequence alignment with GPU-BLAST, *ACS Annual Meeting*, Indianapolis, Indiana, September 1993.
117. Cozad, A., N. V. Sahinidis and D. C. Miller, Automated Learning of Algebraic Models for Optimization, *INFORMS Annual Meeting,* Minneapolis, Minnesota, October 2013.
118. Rajagopalan, S., A. Khajavirad and N. V. Sahinidis, Global optimization with non-polyhedral convex envelopes, *INFORMS Annual Meeting,* Minneapolis, Minnesota, October 2013.
119. Puranik, Y., A. Khajavirad and N. V. Sahinidis, Global optimization of problems with edge-concave intermediates, *INFORMS Annual Meeting,* Minneapolis, Minnesota, October 2013.
120. Sahinidis, N. V. and A. Khajavirad, A hybrid LP/NLP paradigm for global optimization relaxations, *INFORMS Annual Meeting,* Minneapolis, Minnesota, October 2013.
121. Sahinidis, N. V., What's in the box? Systematic approaches for inferring algebraic models from experimental data or simulations, *AIChE Annual Meeting,* San Francisco, California, November 2013.
122. Sahinidis, N. V. and M. V. Kothare, Overview of CAST activities and programming, *AIChE Annual Meeting,* San Francisco, California, November 2013.
123. Sahinidis, N. V., A. Cozad and D. C. Miller, Extending the scope of mixed-integer nonlinear programming techniques to black-box systems, *AIChE Annual Meeting,* Atlanta, Georgia, November 2014. In honor of Ignacio Grossmann's 65th birthday.
124. Ierapetritou, M. and N. V. Sahinidis, Overview of CAST activities and programming, *AIChE Annual Meeting,* Atlanta, Georgia, November 2014.
125. Kılınç, M. and N. V. Sahinidis, Global Optimization of Mixed-integer Nonlinear Optimization Problems in BARON, *INFORMS Annual Meeting,* San Francisco, California, November 2014.

126. Puranik, Y. and N. V. Sahinidis, Systematic Diagnosis of Infeasible NLP and MINLP Models, *INFORMS Annual Meeting,* San Francisco, California, November 2014.
127. Sahinidis, N. V., A. Cozad and D. C. Miller, Extending the scope of mixed-integer nonlinear programming techniques to black-box systems, *INFORMS Annual Meeting,* San Francisco, California, November 2014.
128. Sahinidis, N. V. and R. Adomaitis, Overview of CAST activities and programming, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2015.
129. Sahinidis, N. V. and K. Schnelle, Overview of CAST activities and programming, *AIChE Annual Meeting,* San Francisco, California, November 2016.
130. Nohra, C. and N. V. Sahinidis, Computational experimentation with cutting planes for convex-transformable functions, *INFORMS Annual Meeting,* Nashville, Tennessee, November 2016.
131. Ploskas, N., J. Liu and N. V. Sahinidis, Tuning BARON using derivative-free optimization algorithms, *INFORMS Annual Meeting,* Nashville, Tennessee, November 2016.
132. Kılınç, M. and N. V. Sahinidis, Recent advances in BARON, *INFORMS Annual Meeting,* Nashville, Tennessee, November 2016.
133. Ploskas, N., N. Samaras and N. V. Sahinidis, An advanced starting basis for the simplex algorithm, *INFORMS Annual Meeting,* Nashville, Tennessee, November 2016.
134. Sahinidis, N. V., ALAMO, *AIChE Spring National Meeting,* San Antonio, Texas, March 2017.
135. Schmal, P., A. Chowdhury, A. Lawal, M. Kılınç and N. V. Sahinidis, Model reduction for complex systems analysis, *AIChE Spring National Meeting,* San Antonio, Texas, March 2017.
136. Sahinidis, N. V., ALAMO: Machine learning from data and first principles, *Workshop on Modern Convex Optimization and Applications,* Fields Institute, Toronto, Canada, July 2017.
137. Kılınç, M. and N. V. Sahinidis, Exploiting Integrality in the global optimization of mixed-integer nonlinear programming problems with BARON, *INFORMS Annual Meeting,* Houston, Texas, October 2017.
138. Sahinidis, N. V., ALAMO: Machine learning from data and first principles, *Designing and implementing algorithms for mixed-integer nonlinear optimization,* Dagstuhl, Germany, February 2018.
139. Sahinidis, N. V., ALAMO: Machine learning from data and first principles, *The Joint International Meeting of the Chinese Mathematical Society and the American Mathematical Society (JIMCA 2018),* Fudan University, Shanghai, China, June 2018.
140. Sahinidis, N. V., ALAMO: Machine learning from data and first principles, *2018 International Workshop on Modern Optimization and Applications (MOA 2018),* Chinese Academy of Sciences, Beijing, China, June 2018.
141. Nohra, C. and N. V. Sahinidis, Computational experimentation with branching strategies for global optimization of nonlinear programs and mixed integer nonlinear programs, *INFORMS Annual Meeting,* Phoenix, Arizona, November 2018.
142. Zhang, Y., N. V. Sahinidis, C. Nohra and G. Rong, Optimality-based domain reduction for inequality-constrained NLP and MINLP problems, *INFORMS Annual Meeting,* Phoenix, Arizona, November 2018.
143. Ma, K., N. V. Sahinidis, S. Amaran and S. Bury, Decomposition in global derivative-free optimization, *SIAM Conference on Computational Science and Engineering (CSE19),* Spokane, Washington, February 2019.
144. Sahinidis, N. V., Recent developments in the BARON project, *MINLP Workshop,* Oberwolfach Mathematical Research Institute, Germany, June 2019.

145. Nohra, C., A. Raghunathan and N. V. Sahinidis, Global optimization of nonconvex quadratic programs and mixed-integer quadratic programs, *INFORMS Annual Meeting,* Seattle, Washington, October 2019.
146. Nohra, C., A. Khajavirad and N. V. Sahinidis, Enhancing relaxations for nonconvex mixed-integer quadratically constrained quadratic programs, *INFORMS Annual Meeting,* Seattle, Washington, October 2019.
147. Johnson, B. J. and N. V. Sahinidis, Learning optimal combination of forecasts using best subset selection, *INFORMS Annual Meeting,* Seattle, Washington, October 2019.
148. Ma, K., N. V. Sahinidis, S. Rajagopalan, S. Amaran and S. Burry, Data-driven strategies for optimization of integrated chemical plants, *INFORMS Annual Meeting,* Seattle, Washington, October 2019.
149. Ma, K., N. V. Sahinidis, S. Rajagopalan, S. Amaran and S. Burry, Decomposition in simulation-based optimization, *INFORMS Annual Meeting,* Seattle, Washington, October 2019.
150. Sahinidis, N. V., Progress in the global optimization of mixed-integer nonlinear programming problems, *AIChE Annual Meeting,* Orlando, Florida, October 2019.
151. Nohra, C. and N. V. Sahinidis, Global optimization of nonconvex problems with convex-transformable intermediates, *INFORMS Annual Meeting,* Online, November 2020.
152. Raghunathan, A., C. Nohra and N. V. Sahinidis, Spectral and semidefinite relaxations for mixed integer quadratic programs, *INFORMS Annual Meeting,* Online, November 2020.
153. Sahinidis, N. V., Status of the BARON project, *INFORMS Annual Meeting,* Online, November 2020.
154. Sahinidis, N. V., A. Nohra and A. Raghunathan, Spectral relaxations for mixed-integer quadratic programs, MINOA Conference on "Trends in Mathematical Modelling, Simulation and Optimisation: Theory and Applications", Friedrich-Alexander Universitat, Erlangen-Nurnberg, March 2021.
155. Ploskas, N. and N. V. Sahinidis, Mixed-integer derivative-free optimization: a review and computational comparison of software implementations, *SIAM Conference on Computational Science and Engineering,* Online, March 2021.
156. Ploskas, N. and N. V. Sahinidis, A computational comparison of mixed-integer derivative-free optimization algorithms, *EURO 2021,* Athens, Greece, July 2021.
157. Sahinidis, N. V., Recent advances in the BARON project, *EURO 2021,* Athens, Greece, July 2021.
158. Raghunathan, A., C. Nohra and N. V. Sahinidis, Nonconvex quadratic cuts for global optimization of mixed integer quadratic programs, *EURO 2021,* Athens, Greece, July 2021.
159. Sahinidis, N. V., Convexification for MIQPs and other recent advances in the BARON project, *SIAM Conference on Optimization 2021,* virtual, July 2021.
160. Raghunathan, A., C. Nohra and N. V. Sahinidis, Nonconvex quadratic cuts for global optimization of mixed-integer quadratic programs, *SIAM Conference on Optimization 2021,* virtual, July 2021.
161. Kuznetsov, A. and N. V. Sahinidis, Convexification of the Lennard-Jones potential, MOPTA 2021, Lehigh University, Bethlehem, PA, August 2021.
162. Sahinidis, N. V., C. Nohra and A. Raghunathan, Spectral relaxations for global optimization of mixed-integer quadratic programs, *Operations Research Bern (OR2021),* virtual, September 2021.
163. Sahinidis, N. V., Recent progress in the global optimization of nonlinear and mixed-integer nonlinear programs with BARON, *INFORMS Annual Meeting,* Online, October 2021.
164. Sahinidis, N. V., Global black-box optimization, *Forum on Scientific and Engineering Computing,* Chinese Academy of Sciences, August 2022.

165. Ma, K., L. M. Rios, A. Bhosekar, N. V. Sahinidis, and S. Rajagopalan, Branch-and-Model: A derivative-free global optimization algorithm, *INFORMS Annual Meeting*, Indianapolis, Indiana, October 2022.
166. Kuznetsov. A, and N. V. Sahinidis, New results in the global minimization of molecular potential energy functions, *INFORMS Annual Meeting*, Indianapolis, Indiana, October 2022.
167. Strahl, W., A. Raghunathan, N. V. Sahinidis, and Ch. E. Gounaris, A novel algorithm for constructing tight quadratic underestimators for global optimization, *INFORMS Annual Meeting*, Indianapolis, Indiana, October 2022.
168. Li, Y., S. S. Dey, and N. V. Sahinidis, A decomposition framework for solving gas network expansion optimization, *INFORMS Annual Meeting*, Indianapolis, Indiana, October 2022.
169. Sahinidis, N. V., Recent developments in the BARON project, *INFORMS Annual Meeting*, Indianapolis, Indiana, October 2022.
170. Sahinidis, N. V., Global optimization with integers: model-based and data-driven approaches, *ICERM Workshop on Trends in Computational and Discrete Optimization*, Providence, Rhode Island, April 2023.
171. Sahinidis, N. V., A combined linear and nonlinear presolve for integer optimization problems, *MIP 2023*, University of Southern California, Los Angeles, California, May 2023.
172. Sahinidis, N. V., Recent progress in the global optimization of NLPs and MINLPs with BARON, *INFORMS Annual Meeting*, Phoenix, Arizona, October 2023.
173. Bayramoglu, S., G. L. Nemhauser, and N. V. Sahinidis, Learning to branch with interpretable machine learning models, *INFORMS Annual Meeting*, Phoenix, Arizona, October 2023.
174. Kuznetsov, A., and N. V. Sahinidis, Convexification of nonconvex compositions with norms, *INFORMS Annual Meeting*, Phoenix, Arizona, October 2023.
175. Li, Y., S. S. Dey, N. V. Sahinidis, N. Susarla, M. Zamarripa-Perez, and M. G. Drouven, Optimizing the designs and operations of water networks: A decomposition approach, *INFORMS Annual Meeting*, Phoenix, Arizona, October 2023.
176. Strahl, W., A. Raghunathan, N. V. Sahinidis, and Ch. E. Gounaris, Advances in constructing tight quadratic underestimators for global optimization, *INFORMS Annual Meeting*, Indianapolis, Phoenix, Arizona, October 2023.
177. Sahinidis, N. V. and K. Ma, Branch-and-Model with improved initial sampling and clustering-guided local search, *2nd Derivative-Free Optimization Symposium*, Padova, Italy, June 2024.
178. Sahinidis, N. V. and A. Kuznetsov, Convexification of nonconvex compositions with norms, *International Symposium on Mathematical Programming*, Montreal, Canada, July 2024.
179. Sahinidis, N. V. and A. Kuznetsov, Convexification of nonconvex compositions with norms, *Ferris Fest 2024*, Chicago, Illinois, July 2024.
180. Sahinidis, N. V. and A. Kuznetsov, Convexification and optimization of problems involving the Euclidean norm, *ICERM Workshop on Discrete Optimization: Mathematics, Algorithms, and Computation*, Providence, Rhode Island, August 2024.
181. Bayramoglu, S., G. L. Nemhauser, and N. V. Sahinidis, AI/ML approaches to mixed-integer programming, *Advanced PSE+ Stakeholder Summit*, Pittsburgh, Pennsylvania, September 2024.
182. Sahinidis, N. V., Recent developments in the BARON project, *INFORMS Annual Meeting*, Seattle, Washington, October 2024.

183. Bayramoglu, S., G. L. Nemhauser, and N. V. Sahinidis, Learning to branch in AC-network constrained unit commitment problems, *INFORMS Annual Meeting*, Seattle, Washington, October 2024.
184. Choudhary, S. A., S. Dey, and N. V. Sahinidis, The treewidth-convex hull theorem and DP for cut generation in MINLP, *INFORMS Annual Meeting*, Seattle, Washington, October 2024.
185. Oh, D., S. Kim, C. A. Riccardo Perini, J.-P. Correa-Baena, and N. V. Sahinidis, Algorithm-guided experimentation for systematic engineering of perovskite solar cells, *INFORMS Annual Meeting*, Seattle, Washington, October 2024.
186. Sahinidis, N. V., Optimization and machine learning nexus: Model-based and data-driven approaches, *AIChE Annual Meeting*, San Diego, California, October 2024.

D3. Conference and Workshop Presentations

1. Kiparissides, C., E. Sidiropoulou, S. Voutetakis and N. V. Sahinidis, A comparative study of LQC, DMC and extended STR control strategies, *Tenth IFAC World Congress on Automatic Control*, Munich, Germany, July 1987.
2. Sahinidis, N. V., I. E. Grossmann, R. E. Fornari and M. Chathrathi, Optimization model for long range planning in the chemical industry, *AIChE Annual Meeting*, New York, New York, November 1987.
3. Sahinidis, N. V. and I. E. Grossmann, Reformulation of multiperiod MILP models for capacity expansion in chemical processes, *ORSA/TIMS Annual Meeting*, New York, New York, October 1989.
4. Sahinidis, N. V. and I. E. Grossmann, The impact of reformulation on MILP models for multi-period design, *Tenth Chemical Engineering Graduate Student Symposium*, Carnegie Mellon University, Pittsburgh, Pennsylvania, October 1989.
5. Sahinidis, N. V. and I. E. Grossmann, Multiperiod scheduling on continuous parallel lines with sequence dependent changeovers, *TIMS/ORSA Annual Meeting*, Las Vegas, Nevada, May 1990.
6. Sahinidis, N. V. and I. E. Grossmann, Multiperiod capacity expansion for optimal design of industrial complexes, *12th Triennial Conference on Operations Research*, Athens, Greece, June 1990.
7. Sahinidis, N. V. and I. E. Grossmann, Alternative mixed integer optimization approaches for long range planning of chemical processes, *TIMS/ORSA Annual Meeting*, Philadelphia, October 1990.
8. Sahinidis, N. V. and I. E. Grossmann, Large-scale MINLP optimization by decomposition, *AIChE Annual Meeting*, Chicago, November 1990.
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17. Sahinidis, N. V. and M.-L. Liu, A polyhedral approach to integrated plant design, *AIChE Annual Meeting*, St. Louis, Montana, November 1993.
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19. Sahinidis, N. V. and M.-L. Liu, Mixed-integer planning models and polyhedral projection, *ORSA/TIMS Annual Meeting*, Boston, Massachusetts, April 1994.
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21. Shectman, J. P. and N. V. Sahinidis, Separable concave minimization over polyhedral sets, *ORSA/TIMS Annual Meeting*, Detroit, Michigan, October 1994.
22. Liu, M. L. and N. V. Sahinidis, A branch-and-cut optimizer for process planning, *Annual ORSA/TIMS Meeting*, Detroit, Michigan, October 1994.
23. Sahinidis, N. V., Solving global optimization problems with branch-and-reduce, *INFORMS Annual Meeting*, New Orleans, Louisiana, October 1995.
24. Sahinidis, N. V., A global optimization approach to engineering design, *AIChE Meeting*, Miami Beach, Florida, November 1995.
25. Tawarmalani, M. and N. V. Sahinidis, Decomposition algorithms for the TDTSP and QAP, *INFORMS Annual Meeting*, Washington, D.C., May 1996.
26. Shectman, J. P. and N. V. Sahinidis, Global optimization of bilinear programs, *INFORMS Annual Meeting*, Washington, D.C., May 1996.
27. Sahinidis, N. V., Research in computational optimization algorithms and applications, 3rd Midwest Roundtable on Manufacturing and Logistics, University of Illinois, Urbana, Illinois, October 1996.
28. Sahinidis, N. V., J. P. Shectman, M. L. Liu and E. Kourpas, Global optimization: Finiteness issues and applications in process operations, *AIChE Annual Meeting*, Chicago, Illinois, November 1996.
29. Liu, M. L. and N. V. Sahinidis, Bridging the gap between heuristics and optimization in process systems engineering via analytical investigations, *AIChE Annual Meeting*, Chicago, Illinois, November 1996.
30. Ahmed, S. and N. V. Sahinidis, New analytical results for chemical process planning, *AIChE Annual Meeting*, Los Angeles, California, November 1997.
31. Sahinidis, N. V. Computing global solutions of nonconvex NLPs via branch-and-reduce, *Mathematical Programming Symposium*, Lausanne, Switzerland, August 1997.
32. Sahinidis, N. V., M. Tawarmalani and S. Ahmed, New results in 0-1 optimization, *AIChE Annual Meeting*, Miami Beach, Florida, November 1998.
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34. Ahmed, S. and N. V. Sahinidis, An asymptotically optimal heuristic for a multi-stage stochastic integer program, The VII International Conference on Stochastic Programming, The University of British Columbia, Vancouver, Canada, August 1998.
35. Ahmed, S. and N. V. Sahinidis, Analytical investigations for synthesis of supply chain management systems under multiperiod uncertainty, *AIChE Annual Meeting, Dallas*, Texas, October 1999.
36. Sahinidis, N. V., M. Tawarmalani and M. Yu, Novel molecular designs via global optimization, *AIChE Annual Meeting, Dallas*, Texas, October 1999.

37. Voudouris, Y. and N. V. Sahinidis, Process synthesis, design and operations via globally optimal neural network computing, *AIChE Annual Meeting, Dallas*, Texas, October 1999.
38. Furman, K. C. and N. V. Sahinidis, Analytical investigations for heat exchanger network synthesis: Complexity and analysis of heuristics, *AIChE Annual Meeting, Dallas*, Texas, October 1999.
39. Vaia, A. and N. V. Sahinidis, A global optimization approach to the quantitative assessment of a chemical mixture, *AIChE Annual Meeting*, Los Angeles, California, November 2000.
40. Furman, K. C. and N. V. Sahinidis, Heat exchanger network synthesis: Complexity, approximation, and analysis of heuristics, *AIChE Annual Meeting*, Los Angeles, California, November 2000.
41. Sahinidis, N. V. and M. Tawarmalani, A linear programming approach to the global optimization of mixed-integer differential-algebraic systems, *AIChE Annual Meeting*, Los Angeles, California, November 2000.
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44. Furman, K. C. and N. V. Sahinidis, Approximation algorithms in process synthesis: Heuristics with guaranteed performance, *AIChE Annual Meeting*, Reno, Nevada, November 2001.
45. Tawarmalani, M. and N. V. Sahinidis, Global optimization of mixed-integer nonlinear programs, *AIChE Annual Meeting*, Reno, Nevada, November 2001.
46. Sahinidis, N. V., G. Nanda, M. Tawarmalani and M. Yu, A novel MINLP approach to molecular design, *AIChE Annual Meeting*, Reno, Nevada, November 2001.
47. Vaia, A. and N. V. Sahinidis, A global optimization method for the phase problem in X-ray crystallography, *ACA Annual Meeting*, San Antonio, Texas, May 2002.
48. Sahinidis, N. V. and M. Tawarmalani, Finiteness and convexification issues in mixed-integer nonlinear programming, Integer Programming Conference in Honor of Egon Balas' 80th Birthday, Carnegie Mellon University, Pittsburgh, Pennsylvania, June 2002.
49. Chang, Y. and N. V. Sahinidis, Optimization of metabolic networks under stability considerations, 4th Biopathways Consortium Meeting during the 10th International Conference on Intelligent Systems for Molecular Biology, Edmonton, Canada, August 2002.
50. Chang, Y. and N. V. Sahinidis, Optimization of metabolic networks under stability considerations, *AIChE Annual Meeting*, Indianapolis, Indiana, November 2002.
51. Xie, W. and N. V. Sahinidis, Towards the exact solution of the multistage stochastic optimization model for design and planning under uncertainty in the chemical process industries, *AIChE Annual Meeting*, Indianapolis, Indiana, November 2002.
52. Sahinidis, N. V. and C. F. Zukoski, Establishing a graduate degree program in Bioinformatics: Challenges and opportunities, *AIChE Annual Meeting*, Indianapolis, Indiana, November 2002.
53. Furman, K. C. and N. V. Sahinidis, Novel approaches to hard combinatorial optimization problems, *AIChE Annual Meeting*, Indianapolis, Indiana, November 2002.
54. Sahinidis, N. V., Global optimization in informatics problems in biology, chemistry, and physics, *18th International Symposium on Mathematical Programming*, Copenhagen, Denmark, August 2003.

55. Bussieck, M., L. Lasdon, J. Pintér and N. V. Sahinidis, Global optimization with GAMS—Applications and performance, *18th International Symposium on Mathematical Programming*, Copenhagen, Denmark, August 2003.
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57. Rios, L. M. and N. V. Sahinidis, Portfolio optimization for wealth-dependent risk preferences, *INFORMS Annual Meeting*, Atlanta, Georgia, October 2003.
58. Sahinidis, N. V. and A. Vaia, Novel algorithms for molecular structure determination via X-ray crystallography, *AIChE Annual Meeting*, San Francisco, California, November 2003.
59. Chang, Y. and N. V. Sahinidis, Optimization of metabolic networks under stability considerations, *AIChE Annual Meeting*, San Francisco, California, November 2003.
60. Sahinidis, N. V. and H. Ryoo, Breast cancer diagnosis via global optimization, *AIChE Annual Meeting*, San Francisco, California, November 2003.
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65. Sahinidis, N. V. and M. Tawarmalani, On strengthening polyhedral relaxations for nonconvex mathematical programs, *International Conference on Continuous Optimization (ICCOPT—I)*, Troy, New York, August 2004.
66. Xie, W. and N. V. Sahinidis, A novel method to predict side-chain conformation in sequence design and docking, *AIChE Annual Meeting*, Austin, Texas, November 2004.
67. Smith, A. B., A. Vaia and N. V. Sahinidis, Combinatorial optimization algorithms for structure determination from single-crystal X-ray diffraction data, *AIChE Annual Meeting*, Austin, Texas, November 2004.
68. Sahinidis, N. V. and M. Tawarmalani, Strengthening polyhedral relaxations for global optimization problems, *AIChE Annual Meeting*, Austin, Texas, November 2004.
69. Chang, Y. and N. V. Sahinidis, Design of robust biochemical networks governed by power-law functions, *AIChE Annual Meeting*, Austin, Texas, November 2004.
70. Chang, Y. and N. V. Sahinidis, Robust design of dynamic processes, *AIChE Annual Meeting*, Austin, Texas, November 2004.
71. Tawarmalani, M. and N. V. Sahinidis, Solving nonlinear global optimization problems using BARON, *INFORMS Computing Society Conference*, Annapolis, MD, January 2005.
72. Sahinidis, N. V., Metabolism, global optimization, and the Belgian chocolate stabilization problem, *International Workshop on Multilevel Optimization Algorithms and Applications*, Chania, Crete, May 2005.
73. Smith, A. B. and N. V. Sahinidis, A deterministic algorithm for phasing using triplet and quartet invariants, *XX Congress of the International Union of Crystallography*, Florence, Italy, August 2005.
74. Chang, Y. and N. V. Sahinidis, DNA sequencing by hybridization with errors via integer programming, *AIChE Annual Meeting*, Cincinnati, Ohio, October 2005.

75. Chang, Y. and N. V. Sahinidis, A global optimization approach to the design of stabilizing controllers, *AIChE Annual Meeting,* Cincinnati, Ohio, October 2005.
76. Xie, W. and N. V. Sahinidis, Residue-rotamer-reduction for fast protein side-chain conformation prediction, *AIChE Annual Meeting,* Cincinnati, Ohio, October 2005.
77. Smith, A. B. and N. V. Sahinidis, Crystal structure determination from X-ray diffraction data using triplet and quartet invariants, *AIChE Annual Meeting,* Cincinnati, Ohio, October 2005.
78. Xie, W. and N. V. Sahinidis, A Branch-and-reduce algorithm for the contact map overlap problem, *RECOMB'06,* Venice, Italy, April 2006.
79. Sahinidis, N. V. and W. Xie, An exact algorithm for the contact map overlap problem in protein structural alignment, *International Symposium on Mathematical Programming,* Rio de Janeiro, Brazil, August 2006.
80. Smith, A. B. and N. V. Sahinidis, Degree-of-freedom-based methods for phasing centrosymmetric structures from X-ray diffraction data, *ACA Annual Meeting*, Honolulu, Hawaii, August 2006.
81. Elble, J. and N. V. Sahinidis, A comprehensive computational study of scaling techniques for linear programming, *INFORMS Annual Meeting*, Pittsburgh, Pennsylvania, November 2006.
82. Smith, A. B. and N. V. Sahinidis, Degree-of-freedom-based methods for phasing centrosymmetric structures from X-ray diffraction data, *AIChE Annual Meeting,* San Francisco, California, November 2006.
83. Xie, W. and N. V. Sahinidis, Optimal combinatorial library design from a computational complexity perspective, *AIChE Annual Meeting,* San Francisco, California, November 2006.
84. Xie, W. and N. V. Sahinidis, A branch-and-reduce algorithm for the contact overlap problem, *AIChE Annual Meeting,* San Francisco, California, November 2006.
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86. Ong, B. Y. S., P. K. Naraharisetti, J. Xie, C.-H. Wang and N. V. Sahinidis, Biodegradable spray dried microspheres and discs delivering Paclitaxel and Etanidazole for the treatment of glioma: An in vivo subcutaneous study, *AIChE Annual Meeting,* San Francisco, California, November 2006.
87. Ong, B. Y. S., L. Y. Lee, J. Xie, K. A. Smith, C.-H. Wang and N. V. Sahinidis, Controlled delivery of Paclitaxel from electrohydrodynamically atomized microparticles and from micro-porous foams for the post-surgical treatment of glioblastoma multiforme, *AIChE Annual Meeting,* San Francisco, California, November 2006.
88. Rios, L. M. and N. V. Sahinidis, Comparison of derivative-free optimization implementations of deterministic computer experiments, *2nd International Conference on Continuous Optimization (ICCOPT'07)*, McMaster University, Hamilton, Canada, August 2007.
89. Bao, X. and N. V. Sahinidis, Automatic convexity detection for global optimization, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2007.
90. Smith, A. B. and N. V. Sahinidis, A novel integer minimal principle with atomicity constraints for phasing single-crystal X-ray diffraction data, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2007.
91. Elble, J. and N. V. Sahinidis, Direct solution of systems of linear equations, *INFORMS Annual Meeting,* Seattle, Washington, November 2007.

92. Rios, L. M. and N. V. Sahinidis, A Quadratic-model-based convergent deterministic black-box optimization algorithm, *INFORMS Annual Meeting*, Washington, DC, October 2008.
93. Elble, J. and N. V. Sahinidis, Sparse matrix binormalization on a GPU, *9th International Workshop on State-of-the-Art in Scientific and Parallel Computing*, Trondheim, Norway, May 2008.
94. Elble, J., P. Vouzis and N. V. Sahinidis, GPU supercomputing case study: The Kaczmarz algorithm, *5th International Workshop on Parallel Matrix Algorithms and Applications (PMAA'08),* Neuchâtel, Switzerland, June 2008.
95. Shah, S. and N. V. Sahinidis, 3-dimensional protein structure alignment: A review, *Intelligent Systems for Molecular Biology*, Toronto, Canada, July 2008.
96. Smith, A. B. and N. V. Sahinidis, Direct space and simultaneous direct-reciprocal space optimization models for phasing structures, *XXI Congress of the International Union of Crystallography*, Osaka, Japan, August 2008.
97. Samudra, A. and N. V. Sahinidis, Design of secondary refrigerants, *AIChE Annual Meeting*, Philadelphia, Pennsylvania, November 2008.
98. Bao, X., M. Tawarmalani and N. V. Sahinidis, Polyhedral relaxation for nonconvex, quadratically-constrained quadratic programs, *AIChE Annual Meeting*, Philadelphia, Pennsylvania, November 2008.
99. Vouzis, P., J. Elble and N. V. Sahinidis, Graphics processing units for high-performance computing in bioinformatics, *AIChE Annual Meeting*, Philadelphia, Pennsylvania, November 2008.
100. Smith, A. B. and N. V. Sahinidis, Direct space and simultaneous direct-reciprocal space integer optimization models for phasing crystal structures, *Pittsburgh Diffraction Conference*, Pittsburgh, Pennsylvania, November 2008.
101. Grossmann, I. E., P. Belotti, L. T. Biegler, J. Lee, F. Margot, J. Ruiz, N. V. Sahinidis and A. Waechter, Cyber-MINLP: A virtual environment for problem formulations and algorithmic developments, *11th INFORMS Computing Society Conference*, Charleston, North Carolina, January 2009.
102. Samudra, A. and N. V. Sahinidis, Design of secondary refrigerants: A combined optimization-enumeration approach, *FOCAPD 2009*, Breckenridge, Colorado, June 2009.
103. Rios, L. M. and N. V. Sahinidis, Derivative-free optimization: A review of algorithms and comparison of software implementations, *AIChE Annual Meeting*, Nashville, Tennessee, November 2009.
104. Chang, Y. and N. V. Sahinidis, Process design with robust stability under parametric uncertainty, *AIChE Annual Meeting*, Nashville, Tennessee, November 2009.
105. Zorn, K. and N. V. Sahinidis, Reformulation linearization techniques: An application to Hartree-Fock calculations, *AIChE Annual Meeting*, Nashville, Tennessee, November 2009.
106. Vouzis, P., J. Elble and N. V. Sahinidis, Iterative methods for solving PDEs on a graphics processing unit, *AIChE Annual Meeting*, Nashville, Tennessee, November 2009.
107. Samudra, A. and N. V. Sahinidis, Framework for computer-aided molecular design, *AIChE Annual Meeting*, Nashville, Tennessee, November 2009.
108. Shah, S. and N. V. Sahinidis, Secondary structure-aided protein structure alignment, *AIChE Annual Meeting*, Nashville, Tennessee, November 2009.
109. Zhang, Y., P. Vouzis and N. V. Sahinidis, Risk assessment for CO2 geologic sequestration, *AIChE Annual Meeting*, Nashville, Tennessee, November 2009.
110. Zhang, Y., P. Vouzis and N. V. Sahinidis, Risk assessment for CO2 geological sequestration, *Carbon Capture and Sequestration Conference*, Pittsburgh, Pennsylvania, May 2010.

111. Sahinidis, N. V. and A. Samudra, Chemical product design course at Carnegie Mellon University, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2010.
112. Sahinidis, N. V. and A. Khahavirad, Novel relaxations for global optimization, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2010.
113. Zorn, K. and N. V. Sahinidis, Hartree-Fock self-consistent calculations: Global optimization of electronic structure, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2010.
114. Shah, S. and N. V. Sahinidis, Protein structure alignment by derivative-free optimization, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2010.
115. Samudra, A. and N. V. Sahinidis, Design of base fluids for high-pressure/high-temperature drilling, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2010.
116. Cozad, A., N. V. Sahinidis and D. Miller, Optimization of power plant simulations with integrated carbon capture systems using black-box algorithms, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2010.
117. Zhang, Y., P. Vouzis and N. V. Sahinidis, Risk assessment in CO2 sequestration, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2010.
118. Grossmann, I. E., J. Lee, P. Belotti, L. T. Biegler, P. Castro, F. Margot, J. P. Ruiz, N. V. Sahinidis and A. Waechter, Collaborative cyberinfrastructure site for mixed-integer nonlinear programming, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2010.
119. Amaran, S. and N. V. Sahinidis, An algorithm for the global optimization of unconstrained parameter estimation problems, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2010.
120. Vouzis, P. and N. V. Sahinidis, GPU computing in bioinformatics, linear algebra and Monte Carlo simulations, *INFORMS Annual Meeting,* Charlotte, North Carolina, November 2011.
121. Samudra, A. and N. V. Sahinidis, Optimization-based design of novel molecules with desired properties, *INFORMS Annual Meeting,* Charlotte, North Carolina, November 2011.
122. Samudra, A. and N. V. Sahinidis, Design of high pressure/high temperature drilling fluids, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.
123. Samudra, A. and N. V. Sahinidis, Comprehensive computer-aided molecular design framework for pure component design, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.
124. Sahinidis, N. V., A. Khahavirad, X. Bao, M. Tawarmalani and K. Zorn, Multi-variate, multi-term, and multi-constraint relaxations for global optimization of nonconvex NLPs and MINLPs with BARON, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.
125. Amaran, S. and N. V. Sahinidis, Black-box optimization via global optimization of surrogate models, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.
126. Zorn, K. and N. V. Sahinidis, Optimal operation and design of pooling and other bilinear networks, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.
127. Vouzis, P. and N. V. Sahinidis, GPU-based acceleration in linear algebra, bioinformatics, and risk analysis, AIChE Annual Meeting, Minneapolis, Minnesota, October 2011.
128. Zhang, Y. and N. V. Sahinidis, A methodology for risk assessment of CO2 sequestration based on surrogate models of detailed simulations, AIChE Annual Meeting, Minneapolis, Minnesota, October 2011.
129. Cozad, A., Y. Chang, N. Sahinidis and D. C. Miller, Optimization of carbon capture systems using surrogate models of simulated processes, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.

130. Miller, D. C., Y. Chang, A. Cozad, H. Kim, A. Lee, P. Vouzis, N. V. S. N. M. Konda, A. J. Simon, N. Sahinidis, L. Yang and I. E. Grossmann, Synthesis of optimal adsorptive carbon capture processes, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.
131. Cozad, A., N. Sahinidis and D. C. Miller, A computational methodology for learning low-complexity surrogate models of processes from experiments or simulations, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.
132. Chang, K.-F., N. V. Sahinidis and J. Schneider, Modeling and optimization of polymerase chain reaction with derivative-free optimization, *FOCAPO 2012,* Savannah, Georgia, January, 2012.
133. Cozad, A., N. V. Sahinidis and D. C. Miller, Surrogate-based optimization of simulated energy systems, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2012.
134. Zhang, Y. and N. V. Sahinidis, Estimation of permeability and porosity for CO2 sequestration in heterogeneous formations with derivative-free optimization based on observed data, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2012.
135. Zhang, Y. and N. V. Sahinidis, Uncertainty quantification in CO2 sequestration using surrogate models from polynomial chaos expansion, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2012.
136. Sahinidis, N. V., Third generation branch-and-reduce algorithms and software, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2012.
137. Cozad, A., N. V. Sahinidis and D. C. Miller, Alamo: Automatic Learning of Algebraic Models for Optimization, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2012.
138. Amaran, S. and N. V. Sahinidis, An Algorithm for bound-constrained problems in simulation optimization, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2012.
139. Khajavirad, Al. and N. V. Sahinidis, Convex envelopes generated from finitely many compact convex sets, MOPTA 2012, Bethlehem, Pennsylvania, August 2012.
140. Yuan, Z., A. Cozad, N. V. Sahinidis and D. C. Miller, Surrogate Model Based Optimal Synthesis of Solid Sorbent Carbon Capture Process, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, November 2012.
141. Khajavirad, A. and N. V. Sahinidis, Exploiting convexity in global optimization, *INFORMS Computing Society Annual Conference,* Santa Fe, New Mexico, January 2013.
142. Amaran, S., N. V. Sahinidis, S. J. Burry and B. Sharda, A trust region-based algorithm for continuous optimization via simulation, *INFORMS Annual Meeting,* Minneapolis, Minnesota, October 2013.
143. Chen, J., P. Vouzis and N. V. Sahinidis, Application of derivative-free optimization to influenza epidemic vaccination, *INFORMS Annual Meeting,* Minneapolis, Minnesota, October 2013.
144. Zhao, H., P. Vouzis and N. V. Sahinidis, Crystallization process optimization using derivative-free optimization algorithms, *AIChE Annual Meeting,* San Francisco, California, November 2013.
145. Sahinidis, N. V. and A. Samudra, Design of heat transfer media components for retail food refrigeration, *AIChE Annual Meeting,* San Francisco, California, November 2013.
146. Austin, N., A. Samudra, N. V. Sahinidis and D. W. Trahan, A computational methodology for designing mixtures, *AIChE Annual Meeting,* San Francisco, California, November 2013.
147. Puranik, Y. P., N. V. Sahinidis, T. Li, D. Feather and B. Besancon, Real time optimization of a complex industrial gas network, *AIChE Annual Meeting,* San Francisco, California, November 2013.

148. He, Y. and N. Sahinidis, A continuous-time MINLP model for optimal source-sink matching in carbon capture and storage systems under uncertainty, *AIChE Annual Meeting,* San Francisco, California, November 2013.
149. Yuan, Z., N. V. Sahinidis and D. C. Miller, Superstructure formulation and optimization for carbon capture process, *AIChE Annual Meeting,* San Francisco, California, November 2013.
150. Amaran, S., N. V. Sahinidis, B. Sharda and S. J. Bury, Turnaround optimization for continuous chemical plants, *AIChE Annual Meeting,* San Francisco, California, November 2013.
151. Sahinidis, N. V. and A. Khajavirad, A hybrid LP/NLP paradigm for global optimization relaxations, *AIChE Annual Meeting,* San Francisco, California, November 2013.
152. Cozad, A., N. V. Sahinidis and D. C. Miller, Alamo: Automatic learning of algebraic models for optimization, *AIChE Annual Meeting,* San Francisco, California, November 2013.
153. Wilson, Z. and N. V. Sahinidis, Subset selection in multiple linear regression, *AIChE Annual Meeting,* Atlanta, Georgia, November 2014.
154. Austin, N. N. V. Sahinidis and D. W. Trahan, Determining optimal groups for group contribution methods, *AIChE Annual Meeting,* Atlanta, Georgia, November 2014.
155. Puranik, Y., N. V. Sahinidis, T. Li, A. Gopalakrishnan and B. Besancon, Global optimization of real time operation of an industrial gas network, *AIChE Annual Meeting,* Atlanta, Georgia, November 2014.
156. Zhang, T., S. Amaran, N. V. Sahinidis, B. Sharda and S. J. Bury, Optimal short-term scheduling of turnarounds in an integrated site, *AIChE Annual Meeting,* Atlanta, Georgia, November 2014.
157. Sahinidis, N. V. and M. Kılınç, Global Optimization of mixed-integer nonlinear optimization problems, *AIChE Annual Meeting,* Atlanta, Georgia, November 2014.
158. Zheng, H., L. M. Rios and N. V. Sahinidis, Computational experience with the MAS algorithm for derivative-free optimization, *INFORMS Annual Meeting,* San Francisco, California, November 2014.
159. Sahinidis, N. V., Recent advances in the BARON project, World Congress on Global Optimization, Gainesville, Florida, February 2015.
160. Austin, N., N. V. Sahinidis and D. W. Trahan, A DFO-based approach to computer-aided mixture design, *INFORMS Annual Meeting,* Philadelphia, Pennsylvania, November 2015.
161. Puranik, Y. and N. V. Sahinidis, Polyhedral cut generation for global optimization of problems with edge-concave intermediates, *INFORMS Annual Meeting,* Philadelphia, Pennsylvania, November 2015.
162. Kılınç, M. and N. V. Sahinidis, Recent developments in BARON for global optimization of NIPS and MINLPS, *INFORMS Annual Meeting,* Philadelphia, Pennsylvania, November 2015.
163. Bhosekar, A., N. V. Sahinidis and L. M. Rios, Computational experience with the BAM global optimization algorithm for derivative-free optimization, *INFORMS Annual Meeting,* Philadelphia, Pennsylvania, November 2015.
164. Puranik, Y., N. V. Sahinidis, T. Li, A. Gopalakrishnan and B. Besancon, Efficient real-time operation of an industrial gas network through global optimization, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2015.
165. Sahinidis, N. V., The ALAMO software for model building, constrained regression, and intelligent experimental design, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2015.

166. Austin, N., N. V. Sahinidis and D. W. Trahan, A COSMO-based approach to computer-aided mixture design, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2015.
167. Wilson, Z., A. Cozad, Z. Yuan, N. V. Sahinidis and D. C. Miller, A reduced-order building approach to simulation-based optimization of complex energy systems, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2015.
168. Cozad, A., Z. Wilson and N. V. Sahinidis, Learning models of unspecified functional form through symbolic regression, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2015.
169. Sahinidis, N. V. and M. Kılınç, A new portfolio of relaxations for global optimization of NLPs and MINLPs, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2015.
170. Bhosekar, A., N. V. Sahinidis and L. M. Rios, Branch-And-Model: A model-based derivative-free global optimization algorithm, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2015.
171. Rajagopalan, S., N. V. Sahinidis, B. Sharda, S. Amaran and S. J. Bury, Flexible turnaround planning in integrated chemical site networks, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2015.
172. Ploskas, N., N. Samaras and N. V. Sahinidis, Accelerating the simplex algorithm via novel crash procedures, *AIChE Annual Meeting*, San Francisco, California, November 2016.
173. Austin, N., N. V. Sahinidis and D. W. Traham, An extension of COSMO-based methodologies for computer-aided mixture design, *AIChE Annual Meeting*, San Francisco, California, November 2016.
174. Puranik, Y., M. Kılınç and N. V. Sahinidis, Recent advances in the BARON project, *AIChE Annual Meeting*, San Francisco, California, November 2016.
175. Wilson, Z. and N. V. Sahinidis, An optimization-based approach for learning simple parametric surrogate models, *AIChE Annual Meeting*, San Francisco, California, November 2016.
176. Wilson, Z. and N. V. Sahinidis, Simultaneous reaction identification and parameter estimation, *AIChE Annual Meeting*, San Francisco, California, November 2016.
177. Rajagopalan, S., S. Amaran, N. V. Sahinidis, S. J. Bury and J. M. Wassick, Financially risk-aware plant maintenance turnaround planning incorporating reliability in integrated chemical sites, *AIChE Annual Meeting*, San Francisco, California, November 2016.
178. Zamarripa, M., J. Eslick, A. Lee, O. Ajayi, Z. Wilson, N. V. Sahinidis and D. C. Miller, Optimal design and operation of hybrid CO2 capture systems, *AIChE Annual Meeting*, San Francisco, California, November 2016.
179. Liu, J., N. Ploskas and N. V. Sahinidis, Tuning the global optimization solver BARON using derivative-free optimization algorithms, *Global Optimization Conference (GOC-2017)*, College Station, Texas, March 2017.
180. Rajagopalan, S., N. V. Sahinidis, S. Amaran and S. Bury, A stochastic optimization approach to maintenance turnaround planning in integrated chemical sites, *INFORMS Annual Meeting*, Houston, Texas, October 2017.
181. Rajagopalan, S., S. Amaran, N. V. Sahinidis and S. Bury, An integrated chemical site planning and scheduling framework—Model and algorithm, *AIChE Annual Meeting*, Minneapolis, Minnesota, October 2017.
182. Zhang, T., N. V. Sahinidis and J. J. Siirola, Pattern recognition in chemical process flowsheets, *AIChE Annual Meeting*, Minneapolis, Minnesota, October 2017.
183. Wilson, Z. and N. V. Sahinidis, Reaction identification and parameter estimation from chemical process data, *AIChE Annual Meeting*, Minneapolis, Minnesota, October 2017.
184. Sauk, B., N. Ploskas and N. V. Sahinidis, GPU parameter tuning for dense linear least squares problems, *AIChE Annual Meeting*, Minneapolis, Minnesota, October 2017.

185. Nohra, C. and N. V. Sahinidis, Global optimization of nonconvex problems with convex-transformable intermediates, *AIChE Annual Meeting*, Minneapolis, Minnesota, October 2017.
186. Engle, M. and N. V. Sahinidis, Constrained best subset selection methodology for the regression of Helmholtz energy equations, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2017.
187. Wilson, Z. and N. V. Sahinidis, Data driven modeling in ALAMO: Feature selection and non-parametric modeling applications, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2018.
188. Zhang, T., N. V. Sahinidis, C. Rose, S. Amaran, B. Shuang, Forty years of Computers & Chemical Engineering (1977-2017): Analysis of the field via natural language processing techniques, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2018.
189. Hubbs, C. D., S. Amaran, J. M. Wassick, N. V. Sahinidis and I. E. Grossmann, A comparison of mathematical optimization and deep reinforcement learning for supply chain materials planning, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2018.
190. Sauk, B. and N. V. Sahinidis, Autotuning with derivative-free optimization, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2018.
191. Nohra, C., A. Khajavirad and N. V. Sahinidis, Enhancing relaxations for nonconvex mixed-integer quadratically-constrained quadratic programs, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2018.
192. Ploskas, N., C. Laughman, A. Raghunathan and N. V. Sahinidis, Optimization of circuitry arrangements for heat exchangers, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2018.
193. Sun, Y., A. Samudra and N. V. Sahinidis, Discovery of electronics cooling fluids, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2018.
194. Engle, M. and N. V. Sahinidis, Constrained subset selection for the regression of multi-component Helmholtz energy equations, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2018.
195. Sarwar, O. and N. V. Sahinidis, A metaheuristic approach to best subset selection for the development of regression-based surrogate models, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2018.
196. Engle, M. and N. V. Sahinidis, Symbolic regression of alpha functions for cubic equations of state, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2018.
197. Johnson, B. and N. V. Sahinidis, Ensemble models for univariate time series forecasting, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2018.
198. Sauk, B. and N. V. Sahinidis, Accelerating the generation of coal power plant property models, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2018.
199. Ploskas, N., N. V. Sahinidis and N. Samaras, A novel initialization procedure for the simplex algorithm, *INFORMS Annual Meeting,* Phoenix, Arizona, November 2018.
200. Ploskas, N., C. Laughman, A. U. Raghunathan and N. V. Sahinidis, Heat exchanger circuitry design by decision diagrams, 16th International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR 2019), Thessaloniki, Greece, June 2019.
201. Ploskas, N., N. V. Sahinidis and N. Samaras, An advanced initialization procedure for the simplex algorithm. 17th Workshop on Advances in Continuous Optimization (EUROPT 2019), Glasgow, United Kingdom, June 2019.
202. Ploskas, N. and N. V. Sahinidis, A review and computational comparison of bound constrained mixed-integer derivative-free optimization algorithms, 30th European Conference on Operational Research (EURO 2019), Dublin, Ireland, June 2019.

203. Ploskas, N., N. V. Sahinidis and N. Samaras, An advanced initialization procedure for the simplex algorithm. Sixth International Conference on Continuous Optimization (ICCOPT 2019), Berlin, Germany, August 2019.
204. Khajavirad, A., Y. Puranik and N. V. Sahinidis, ALAMO for Data Analytics and Machine Learning, *INFORMS Annual Meeting,* Seattle, Washington, October 2019.
205. Sun, Y. and N. V. Sahinidis, Group contribution method for organosilicon compounds, *AIChE Annual Meeting,* Orlando, Florida, October 2019.
206. Johnson, B., S. García-Muñoz, M. Sen, J. Hanson, D. Slade and N. V. Sahinidis, A piecewise parametric model for open loop screw feeder flow rates, *AIChE Annual Meeting,* Orlando, Florida, October 2019.
207. Nohra, C., A. Raghunathan and N. V. Sahinidis, Global optimization of nonconvex quadratic programs and mixed-integer quadratic programs, *AIChE Annual Meeting,* Orlando, Florida, October 2019.
208. Hubbs, C. D., N. V. Sahinidis, I. E. Grossmann and J. M. Wassick, A deep reinforcement learning approach for production scheduling, *AIChE Annual Meeting,* Orlando, Florida, October 2019.
209. Sauk, B. and N. V. Sahinidis, GPU parallel forward and backward selection for model building, *AIChE Annual Meeting,* Orlando, Florida, October 2019.
210. Sauk, B. and N. V. Sahinidis, Tuning with hybrid derivative-free optimization initialization strategies, *AIChE Annual Meeting,* Orlando, Florida, October 2019.
211. Engle, M. and N. V. Sahinidis, Improving the subset selection regression of Helmholtz energy equations, *AIChE Annual Meeting,* Orlando, Florida, October 2019.
212. Engle, M. and N. V. Sahinidis, Evaluation of an MINLP formulation for symbolic regression, *AIChE Annual Meeting,* Orlando, Florida, October 2019.
213. Zheng, C., T. Zhang, N. V. Sahinidis, J. J. Siirola and X. Chen, A novel method to compare chemical process flowsheets, *AIChE Annual Meeting,* Orlando, Florida, October 2019.
214. Ma, K., N. V. Sahinidis, S. Amaran, S. Rajagopalan and S. J. Bury, Decomposition in derivative-free optimization, *AIChE Annual Meeting,* Orlando, Florida, October 2019.
215. Sarwar, O. and N. V. Sahinidis, Randomized rounding for best subset selection regression, *AIChE Annual Meeting,* Orlando, Florida, October 2019.
216. Ploskas, N. and N. V. Sahinidis, A review and computational comparison of derivative-free methods for bound-constrained mixed-integer optimization, *INFORMS Annual Meeting,* Online, November 2020.
217. Sarwar, O., Ch. D. Hubbs and N. V. Sahinidis, An open-source tool for implementing and comparing sparse regression methods, AIChE Annual Meeting, Online, November 2020.
218. Sun, Y. and N. V. Sahinidis, A new group contribution method for organosilicon structures and its application in the design of electronics cooling fluids, *AIChE Annual Meeting,* Online, November 2020.
219. Nohra, C., A. Raghunathan and N. V. Sahinidis, SDP-quality bounds via convex quadratic relaxations for global optimization of mixed-integer quadratic programs, *AIChE Annual Meeting,* Online, November 2020.
220. Na, J. and N. V. Sahinidis, Efficient Bayesian inference for first-principle simulation via adversarial networks and low-complexity surrogate models, *AIChE Annual Meeting,* Online, November 2020.
221. Hubbs, C. H., N. V. Sahinidis, I. E. Grossmann and J. M. Wassick, Multi-stage chemical plant production scheduling under uncertainty with deep reinforcement learning, *AIChE Annual Meeting,* Online, November 2020.

222. Johnson, B., S. García-Muñoz, M. Sen, J. Hanson, D. Slade and N. V. Sahinidis, Characterizing and modeling pharmaceutical twin screw feeder mass flow rates using statistical time series analysis, *AIChE Annual Meeting,* Online, November 2020.
223. Johnson, B., S. García-Muñoz, M. Sen, J. Hanson, D. Slade and N. V. Sahinidis, Stochastic analysis and modeling of pharmaceutical screw feeder mass flow rates, *AIChE Annual Meeting,* Online, November 2020.
224. Hubbs, C. H., O. Sarwar, H. Perez, I. E. Grossmann and N. V. Sahinidis, OR-Gym: A reinforcement learning library for operations research problems, *AIChE Annual Meeting,* Online, November 2020.
225. Ma, K., N. V. Sahinidis, S. Rajagopalan, S. Amaran and S. J. Bury, Data-driven strategies for optimization of integrated chemical plants, *AIChE Annual Meeting,* Online, November 2020.
226. Engle, M. and N. V. Sahinidis, Enhancing symbolic regression with gradient information, *AIChE Annual Meeting,* Online, November 2020.
227. Kuznetsov, A. and N. V. Sahinidis, Sepscore: A quantitative framework for evaluating synthetic routes on predicted separation difficulty, *ACS Spring 2021,* Online, March 2021.
228. Johnson, B. J. and N. V. Sahinidis, An optimization-based method for combining forecasts, ITISE 2021 (7th International conference on Time Series and Forecasting), July 2021.
229. Sarwar, O. and N. V. Sahinidis, Regularized subsets: A framework for high-dimensional linear regression with noisy data and optional constraints, *AIChE Annual Meeting,* Boston, Massachusetts, November 2021.
230. Kuznetsov, A. and N. V. Sahinidis, ExtractionScore: A quantitative framework for evaluating synthetic routes on predicted liquid-liquid extraction performance, *AIChE Annual Meeting,* Boston, Massachusetts, November 2021.
231. Ma, K., L. M. Rios and N. V. Sahinidis, Model-and-Search: A derivative-free local optimization algorithm, *AIChE Annual Meeting,* Online, November 2021.
232. Johnson, B. J., B. Bekaert, V. Vanhoorne, Th. De Beer, S. García-Muñoz and N. V. Sahinidis, Predicting screw feeder flow rates from powder properties and operating conditions, *AIChE Annual Meeting,* Online, November 2021.
233. Strahl, W., Ch. E. Gounaris, N. V. Sahinidis and A. Raghunathan, On constructing quadratic underestimators for non-convex D.C. functions, *International Conference on Continuous Optimization (ICCOPT 2022),* Bethlehem, PA, July 2022.
234. Ma, K., L. M. Rios, A. Bhosekar, N. V. Sahinidis, and S. Rajagopalan, Branch-and-Model: A derivative-free global optimization algorithm, *AIChE Annual Meeting*, Phoenix, Arizona, November 2022.
235. Kuznetsov. A, and N. V. Sahinidis, New results in the global minimization of molecular potential energy functions, *AIChE Annual Meeting,* Phoenix, Arizona, November 2022.
236. Strahl, W., A. Raghunathan, N. V. Sahinidis, and Ch. E. Gounaris, A novel algorithm for constructing tight quadratic underestimators for global optimization, *AIChE Annual Meeting,* Phoenix, Arizona, November 2022.
237. Sarwar, O. and N. V. Sahinidis, Fast Symbolic Regression with Constraints, *AIChE Annual Meeting,* Phoenix, Arizona, November 2022.
238. Ha, J., H. Seo, J. Liu, H. Feng, N. V. Sahinidis, and J. Na, Techno-Economic Analysis of Ultrasound Technology for Ethanol-Water Mixture Separation Process, *AIChE Annual Meeting,* Phoenix, Arizona, November 2022.
239. Zhang, Y. and N. V. Sahinidis, Solving continuous and discrete nonlinear programs with BARON, PANOPTIC 2023, University of Florida, Gainesville, Florida, March 2023.

240. Zhang, Y. and N. V. Sahinidis, Eliminating dominated variables in general mixed-integer nonlinear programming, World Congress on Global Optimization, Athens, Greece, July 2023.
241. Kuznetsov, A., and N. V. Sahinidis, Convexification of nonconvex compositions with norms, *AIChE Annual Meeting*, Orlando, Florida, October 2023.
242. Kuznetsov, A., and N. V. Sahinidis, Nonconvex optimization problems involving the Euclidean distance, *AIChE Annual Meeting*, Orlando, Florida, October 2023.
243. Oh, D., S. Kim, C. A. Riccardo, J.-P. Correa-Baena, and N. V. Sahinidis, Data-driven optimization of perovskite solar cells, *AIChE Annual Meeting*, Orlando, Florida, October 2023.
244. Strahl, W., A. Raghunathan, N. V. Sahinidis, and Ch. E. Gounaris, Advances in constructing tight quadratic underestimators for global optimization, *AIChE Annual Meeting*, Orlando, Florida, October 2023.
245. Bayramoglu, S, G. Nemhauser, and N. V. Sahinidis, Learning to branch with interpretable machine learning models, *37th Conference of the European Chapter on Combinatorial Optimization (ECCO'24)*, Ghent, Belgium, June 2024.
246. Kuznetsov, A. and N. V. Sahinidis, Convexification of optimization problems involving the Euclidean norm, *Optimization, Analytics, and Decisions in the Big Data Era*, Halkidiki, Greece, June 2024.
247. Zhang, Y. and N. V. Sahinidis, Solving continuous and discrete nonlinear programs with BARON, *Optimization, Analytics, and Decisions in the Big Data Era*, Halkidiki, Greece, June 2024.
248. Kuznetsov, A. and N. V. Sahinidis, Convexification of optimization problems involving the Euclidean norm, *EURO2024*, Copenhagen, Denmark, June 2024.
249. Zhang, Y. and N. V. Sahinidis, Global optimization of continuous and discrete nonlinear programs with BARON, *EURO2024*, Copenhagen, Denmark, June 2024.
250. Oh, D., S. Kim, C. A. Riccardo Perini, J.-P. Correa-Baena, and N. V. Sahinidis, Systematic engineering of perovskite solar cells through algorithm-guided experimentation, *AIChE Annual Meeting*, San Diego, California, October 2024.
251. Fardis, D., D. Oh, and N. V. Sahinidis, Surrogate-Based Optimization for the Recovery of Critical Minerals and Rare Earth Elements, *AIChE Annual Meeting*, San Diego, California, October 2024.
252. Mitrai, I., and N. V. Sahinidis, A global optimization approach for the symbolic design of iterative algorithms, *AIChE Annual Meeting*, San Diego, California, October 2024.

D4. Invited Seminar Presentations

1. AMOCO Research Center, Naperville, Illinois, March 1990.
2. EXXON Research and Engineering, Annandale, New Jersey, May 1990.
3. University of Illinois at Urbana-Champaign, Department of Mechanical and Industrial Engineering, January 1991.
4. University of Minnesota, Minneapolis, Minnesota, Department of Chemical Engineering and Materials Science, February 1991.
5. Illinois Institute of Technology, Chicago, Illinois, Department of Chemical Engineering, March 1991.
6. University of California at Los Angeles, Department of Chemical Engineering, May 1991.
7. AMOCO Research Center, Naperville, Illinois, December 1993.
8. University of Illinois at Urbana-Champaign, Department of Mechanical and Industrial Engineering, April 1995.
9. University of California at Los Angeles, Department of Chemical Engineering, April 1996.

10. Sabre Decision Technologies/American Airlines, Dallas/Fort Worth, Texas, September 1996.
11. University of California at Santa Barbara, Department of Chemical Engineering, February 1997.
12. University of Houston, Houston, Texas, Department of Chemical Engineering, March 1997.
13. University of Illinois at Urbana-Champaign, Department of Chemical Engineering, April 1997.
14. University of Wisconsin-Madison, Department of Chemical Engineering, September 1997.
15. Mobil Technology Center, Houston, Texas, February 1998.
16. University of Illinois at Chicago, Department of Chemical Engineering, April 1999.
17. IBM, T. J. Watson Research Laboratory, Yorktown Heights, New York, November 1999.
18. Carnegie Mellon University, Pittsburgh, Pennsylvania, Department of Chemical Engineering, January 2000.
19. New York University, New York, New York, Department of Operations Management, January 2000.
20. National Taiwan University, Taipei, Taiwan, Department of Chemical Engineering, March 2000.
21. National Chengchi University, Taipei, Taiwan, Department of Mathematical Sciences, March 2000.
22. National Taiwan University of Science and Technology, Taipei, Taiwan, Department of Chemical Engineering, March 2000.
23. Columbia University, New York, New York, Department of Industrial Engineering and Operations Research, April 2000.
24. Delft University of Technology, Netherlands, Department of Statistics, Probability, and Operations Research, May 2000.
25. Massachusetts Institute of Technology, Cambridge, Massachusetts, Department of Chemical Engineering, October 2000.
26. University of Oklahoma, Norman, Oklahoma, Schools of Chemical Engineering and Industrial Engineering, October 2001.
27. ExxonMobil Upstream Research Center, Houston, Texas, December 2002.
28. Aristotle University of Thessaloniki, Thessaloniki, Greece, Department of Chemical Engineering, March 2003.
29. Hauptman-Woodward Institute, Buffalo, New York, May 2003.
30. Aristotle University of Thessaloniki, Thessaloniki, Greece, Department of Mechanical Engineering, May 2003.
31. Global Optimization Theory Institute, Argonne National Laboratory, Argonne, Illinois, September 2003.
32. ExxonMobil Upstream Research Center, Houston, Texas, December 2003.
33. ExxonMobil Research and Engineering Company, Clinton, NJ, May 2004.
34. University of Texas at Austin, Austin, Texas, Department of Chemical Engineering, March 2005.
35. Otto-von-Guericke Universität Magdeburg, Magdeburg, Germany, Faculty of Mathematics, March 2006.
36. RWTH Aachen University, Aachen, Germany, Process Systems Engineering, March 2006.
37. University of Western Macedonia, Kozani, Greece, Department of Informatics Engineering and Telecommunications Engineering, April 2006.
38. Carnegie Mellon University, Pittsburgh, Pennsylvania, Department of Chemical Engineering, May 2006.

39. Swiss Federal Institute of Technology (ETH), Zurich, Switzerland, Optimization and Applications joint seminar series between ETH Zurich and University of Zurich, May 2006.
40. Massachusetts Institute of Technology, Cambridge, Massachusetts, Department of Mathematics, Applied Mathematics Colloquium, October 2007.
41. Carnegie Mellon University, Pittsburgh, Pennsylvania, Enterprise-Wide Optimization Seminar Series, October 2007.
42. University of Pittsburgh, Pittsburgh, Pennsylvania, Department of Industrial Engineering, October 2007.
43. Georgia Institute of Technology, Atlanta, Georgia, School of Industrial & Systems Engineering and Center for the Study of Systems Biology, Distinguished Lecture Series in Systems Biology, April 2008.
44. University of Pittsburgh Medical School, Pittsburgh, Pennsylvania, Department of Computational Biology, April 2008.
45. Carnegie Mellon University, Tepper School of Business, Pittsburgh, Pennsylvania, April 2008.
46. University of Wisconsin, Madison, Wisconsin, Department of Chemical and Biological Engineering, April 2008.
47. Carnegie Mellon University, Pittsburgh, Pennsylvania, Enterprise-Wide Optimization Seminar Series, January 2010.
48. University of Rhode Island, Kingston, Rhode Island, Department of Chemical Engineering, March 2010.
49. Carnegie Mellon University, Pittsburgh, Pennsylvania, Department of Computational Biology, May 2010.
50. Fields Institute, University of Toronto, Toronto, Canada, March 2011.
51. GERAD, Montreal, Canada, March 2011.
52. Rutgers Business School, Newark, New Jersey, November 2011.
53. COPPE, Federal University Rio de Janeiro, Brazil, March 2012.
54. Lindsay Lecturer, Texas A&M University, College Station, Texas, Department of Chemical Engineering, April 2013.
55. D. B. Robinson distinguished speaker, University of Alberta, Department of Chemical & Materials Engineering, April 2013.
56. ExxonMobil Research and Engineering Company, Clinton, NJ, August 2013.
57. Imperial College, London, United Kingdom, January 2014.
58. University of Michigan, Ann Arbor, Michigan, Department of Industrial & Operations Engineering, October 2014.
59. Boeing Multidisciplinary Design Optimization community webinar, April 2015.
60. Eastman Chemical, Kingsport, TN, September 2015.
61. Carnegie Mellon University, Pittsburgh, Pennsylvania, Enterprise-Wide Optimization Seminar Series, October 2015.
62. Dow Chemical Company, Freeport, TX, May 2016.
63. Virginia Tech, Grado Department of Industrial and Systems Engineering, January 2017.
64. Procter & Gamble, Cincinnati, OH, April 2017.
65. University of Connecticut, UTC Institute for Advanced Systems Engineering, April 2017.
66. University of California at Berkeley, Department of Industrial Engineering and Operations Research, October 2017.
67. University of California at Los Angeles, Department of Chemical and Biomolecular Engineering, October 2017.
68. Clemson University, Department of Chemical and Biomolecular Engineering, April 2018.

69. Zhejiang University, College of Control Science and Engineering, June 2018.
70. Shanghai Jiao Tong University, School of Chemistry and Chemical Engineering, June 2018.
71. Carrier—United Technologies Corporation, Shanghai, China, June 2018.
72. Tsinghua University, Beijing, China, June 2018.
73. Lehigh University, Department of Chemical and Biomolecular Engineering, October 2018.
74. University of Southern California, Department of Chemical Engineering & Materials Science, April 2019.
75. Cornell University, Systems Engineering Program, November 2019.
76. University of Wisconsin-Madison, Systems, Information, Learning and Optimization seminar series, November 2019.
77. Georgia Institute of Technology, School of Industrial and Systems Engineering, January 2020.
78. Georgia Institute of Technology, School of Chemical and Biomolecular Engineering, January 2020.
79. Rocky Mountain Section of the American Institute of Chemical Engineers, Webinar, September 2020.
80. PSE for SPEED, Webinar, August 2021.
81. Georgia Institute of Technology, Algorithms & Randomness Center, November 2021.
82. Amazon, Modeling and Optimization Seminar Series, July 2022.
83. KTH Royal Institute of Technology, September 2022.
84. Chinese University of Hong Kong, May 2023.
85. Georgia Institute of Technology, Industrial & Systems Engineering, October 2024.

E. Grants and Contracts

E1. As Principal Investigator

Internal instructional funding

1. UIUC Computational Science and Engineering Program ($11,818, 1/2003–7/2003): Development of teaching material for a new bioinformatics course. Investigator: N. V. Sahinidis (sole PI).
2. Georgia Tech, College of Engineering ($20,000, 5/2024): Development of teaching material for a new ChBE course “Advanced Optimization in Process Systems Engineering”. Investigator: N. V. Sahinidis (sole PI)

Internal research funding

1. UIUC Research Board ($20,005, 1992–1993): An aid to molecular structure prediction (N. V. Sahinidis, sole PI).
2. UIUC Research Board ($11,550, 1994–1995): Global optimization of nonconvex NLPs and MINLPs with application in process design (N. V. Sahinidis, sole PI).
3. UIUC Research Board ($15,000, 1995-1996): Optimization tools for planning and scheduling in the process industries (N. V. Sahinidis, sole PI).
4. UIUC Research Board ($10,500, 1998): Bridging the gap between heuristics and optimization in process systems engineering (N. V. Sahinidis, sole PI).
5. UIUC Computational Science and Engineering Program ($29,000, 1998–2000): Computer-aided design of environmentally benign refrigerants (N. V. Sahinidis: PI, D. Wuebbles: co-PI).

6. UIUC Research Board ($14,727, 1999–2000): Portfolio optimization via global nonconvex quadratic programming (N. V. Sahinidis: sole PI).
7. UIUC Research Board ($6,000, 2001–2002): Novel algorithms for heat exchanger network synthesis and related transportation problems (N. V. Sahinidis: sole PI).
8. UIUC Research Board ($13,000, 2003): Novel algorithms for crystallographic computing (N. V. Sahinidis: sole PI).
9. UIUC Research Board ($6,433, 2005): Global optimization algorithms for differential-algebraic systems (N. V. Sahinidis: sole PI).
10. UIUC Computational Science and Engineering Program ($44,000, 2004–2006): Design of robust metabolic and signaling networks. Investigators: N. V. Sahinidis (PI), P. G. Voulgaris (co-PI), H. Zhao (co-PI).

External research funding (sole PI unless mentioned otherwise)

1. TAPPI Foundation ($39,969, 1995–1996): Development of novel modeling and optimization approaches for scheduling the operation of paper production plants.
2. NSF (DMII program, $79,990, 1995–1997): Development of a global optimization methodology to support engineering design and manufacturing.
3. EXXON Education Foundation ($10,000, 1995–1996): Mixed-integer and global non-linear optimization in science and engineering.
4. NSF CAREER Award (OR/PS program, $310,000, 1995–2000): Optimization tools for planning and scheduling in the process industry.
5. Petroleum Research Fund (American Chemical Society, $50,000, 1995–1997): Development of a global optimization methodology.
6. NSF (CTS program, $152,905, 1997–2001): Bridging the gap between heuristics and optimization in process systems engineering.
7. NSF/Lucent Technologies (NSF's BES program, $100,000, 1998–2000): Design of environmentally benign refrigerants.
8. Mobil Technology Company ($20,000, 1998): Unrestricted research gift.
9. DuPont Educational Aid Program ($10,000, 1998): Unrestricted research gift.
10. Mobil Technology Company ($15,000, 1999): Unrestricted research gift.
11. Mitsubishi Chemicals, Inc. ($25,000, 2000–2001): Unrestricted research gift.
12. NSF (Electrical and Communication Systems Program, $158,475, 2001–2004): Collaborative Research: Globally optimal neural computing algorithms and applications. Investigators: N. V. Sahinidis (PI), T. Trafalis (co-PI, University of Oklahoma). A separate award at the amount of $150,553 was made to the University of Oklahoma. UIUC was the lead institution on this grant.
13. ExxonMobil Upstream Research Technology Center ($15,000, 2002): Unrestricted research gift.
14. ExxonMobil Upstream Research Technology Center ($15,000, 2003): Unrestricted research gift.
15. ExxonMobil Upstream Research Technology Center ($15,000, 2004): Unrestricted research gift.
16. NSF (Operations Research Program, $232,598, 2001–2005): Development and implementation of algorithms for stochastic integer programming.
17. NSF/EPA (NSF's Chemical and Thermal Systems Program, $424,560, 2001–2005): A theoretical and experimental approach to rapid screening and design of secondary refrigerants. Investigators: N. V. Sahinidis (PI), P. Kenis (co-PI), P. Hrnjak (co-PI).
18. ExxonMobil Upstream Research Technology Center ($15,000, 2005): Unrestricted research gift.
19. NIH (NIGMS, $2,083,068, 2004–2010): Novel algorithms for crystallographic computing. Principal Investigator: N. V. Sahinidis. This award included a subcontract with the

Hauptman-Woodward Medical Institute at Buffalo in the amount of $978,883 (Collaborators at HWI: H. Hauptman, C. M. Weeks, H. Xu).

20. DOE (National Energy Technology Laboratory, $362,757, 2008-2010): Risk assessment in CO2 sequestration.
21. DOE (National Energy Technology Laboratory, $185,169, 2008-2010): Design of novel drilling fluids.
22. DOE (National Energy Technology Laboratory, $125,000, 2010): Design of novel drilling fluids.
23. DOE (National Energy Technology Laboratory, $152,000/yr, 2010-13): Risk assessment in CO2 sequestration.
24. DOE (National Energy Technology Laboratory, $155,000/yr, 2010-13): Optimal selection and integration of CO2 capture technologies.
25. NSF (CBET, $364,093, 2010-2013): Process optimization without an algebraic model.
26. NSF (CMMI, $200,000, 2010-2013): Novel relaxations for global optimization.
27. DOE (National Energy Technology Laboratory, $335,211, 2013-2014): ALAMO and superstructure optimization.
28. DOE (National Energy Technology Laboratory, $76,582, 2013-2014): Development of a Generation III RPM/ROM for a reservoir that includes injection and production.
29. DOE (National Energy Technology Laboratory, $44,408, 2013-2014): Development of a ROM/RPM for a groundwater model using the PCE technique.
30. DOE (National Energy Technology Laboratory, $62,500, 2013-2014): Development of third-generation ROMs for groundwater impacts.
31. Process Systems Enterprise ($143,749, 2015-2016): Evaluation of the CCSI toolset.
32. DOE (Lawrence Berkeley National Laboratory, $196,129, 2014-2016): ALAMO and superstructure optimization.
33. Dow Chemical Company ($457,375, 2011-2016): Development, implementation, and application of a molecular design framework.
34. Dow Chemical Company ($457,375, 2011-2016): Financial risk optimization over discrete event simulators.
35. DOE (Lawrence Berkeley National Laboratory, $102,500, 2016-2017): Optimization methods and parallel computing.
36. DOE (Lawrence Berkeley National Laboratory, $166,250, 2016-2017): Tools for kinetics and thermophysical properties.
37. DOE (Lawrence Berkeley National Laboratory, $102,500, 2017): Optimization methods and parallel computing.
38. DOE (Lawrence Berkeley National Laboratory, $166,250, 2017): Tools for kinetics and thermophysical properties.
39. Dow Chemical Company ($265,053, 2017-2018): Next-generation data analytics capabilities for manufacturing and process applications. Investigators: N. V. Sahinidis (PI) and Carolyn Rose (co-PI).
40. ARPA-E ($250,000, 2019): Novel heuristics and global optimization algorithms for optimal power flow with security constraints. Investigators: N. V. Sahinidis (PI) and Aida Khajavirad (co-PI).
41. Dow Chemical Company ($559,644, 2017-2021): Optimization and risk analysis for turnaround planning.
42. Eli Lilly and Company ($2,442,861, 2017-2021): Digital pharmaceutical process design with advanced optimization technology. Investigators: N. V. Sahinidis (PI), L. T. Biegler (co-PI), C. Gounaris (Co-PI), and I. E. Grossmann (Co-PI).
43. Dow Chemical Company ($296,004, 2018-2020): Advanced machine learning for supply chain operations. Investigators: N. V. Sahinidis (PI) and Ignacio Grossmann (co-PI).

44. DOE (Lawrence Berkeley National Laboratory, $423,675, 2018-2020): Kinetics and thermophysical properties.
45. DOE (Lawrence Berkeley National Laboratory, $333,249, 2018-2020): Optimization algorithms and parallel computing.
46. DOE (Lawrence Berkeley National Laboratory, $327,387, 2018-2020): Advanced oxycombustion system optimization.
47. DOE (Lawrence Berkeley National Laboratory, $100,000, 2020-2021): Machine learning and optimization.
48. RAPID (DOE/AIChE, $181,950, 2019-2022): Use of power ultrasound for nonthermal, nonequilibrium separation of ethanol/water solutions.
49. DOE (Lawrence Berkeley National Laboratory, $100,000, 2021-2022): IDEAS Integrated Energy Systems.
50. DOE (Lawrence Berkeley National Laboratory, $50,000, 2021-2022): IDEAS Core.
51. DOE (National Energy Technology Laboratory, $39,604, 2022-2023): AI/ML for Integrated Energy Systems.
52. DOE (National Energy Technology Laboratory, $58,654, 2022-2023): PARETO Produced Water Subcontract.
53. AFOSR ($485,910, 2023-2026): Convexification of extremely nonconvex compositions with norms.
54. DOE (National Energy Technology Laboratory, $125,000, 2023-2024): PROMMIS-Optimization of design and operations and usability.
55. DOE (National Energy Technology Laboratory, $145,600, 2023-2024): PARETO Produced Water Subcontract.
56. DOE (National Energy Technology Laboratory, $149,412, 2023-2024): IDAES-CORE AIML advanced capability development.
57. DOE (National Energy Technology Laboratory, $121,500, 2024-2025): PROMMIS-Optimization of design and operations and usability.
58. DOE (National Energy Technology Laboratory, $143,500, 2024-2025): IDAES-CORE AIML advanced capability development.
59. DARPA ($988,000, 7/16/24-7/15/26): Automated algorithm design. Investigators: N. V. Sahinidis (PI), George Lan (co-PI) and Mohit Singh (co-PI).

E2. As Co-Principal Investigator

1. UIUC Computational Science and Engineering Program ($28,000, 1995–1997): Globally optimal robust reliable control of large-scale sheet and film processes (R. D. Braatz: PI, N. V. Sahinidis: co-PI).
2. NSF (OCI, $1,210,402, 2008–2012): Open cyberinfrastructure for mixed-integer nonlinear programming: Collaboration and deployment via virtual environments. Investigators: L. T. Biegler (co-PI), I. E. Grossmann (PI), F. Margot (co-PI), N. V. Sahinidis (co-PI).

E3. As Senior Personnel or Contributor

1. NSF (AI Institutes, $20M, 2021–2026): AI Institute for Advances in Optimization. PI: Pascal Van Hentenryck. N. V. Sahinidis (senior investigator, part ~$175K).

F. Other Scholarly and Creative Accomplishments

Founder and CEO of *The Optimization Firm, LLC.,* a software development company incorporated in Champaign, Illinois. The firm licensed the BARON software from the University of Illinois, where researchers developed BARON in Professor Sahinidis' research laboratory. The

company partners with AIMMS, AMPL, and GAMS to provide commercial versions of BARON under the AIMMS, AMPL, and GAMS modeling systems. The company offers the stand-alone version of BARON for use under MATLAB, PyOMO, YALMIP, and BARON's native modeling language. For users who need free access to optimization software, the full commercial versions of AMPL/BARON and GAMS/BARON are freely available through the NEOS server with free CPU cycles. This multi-pronged approach to technology transfer aims for maximum impact in the academic and commercial worlds. BARON has solved over 500,000 problems under NEOS alone.

Other software pioneered by Nick Sahinidis that have had considerable practical impact include:

- ALAMO: a machine learning software developed by Professor Sahinidis and his group between 2010-2015. ALAMO has been utilized by several companies, including Braskem, Dow, ExxonMobil, Saudi Aramco, and the Department of Energy. Under the guidance of Professor Sahinidis, the algorithms behind ALAMO were implemented by Process Systems Enterprise (a Siemens company) in their gPROMS package, a leading commercial modeling system in the process industries.
- AMODEO: a molecular design software deployed within The Dow Chemical Company.
- CMOS: a software for protein structure alignment via Contact Map Overlap Maximization available through an online server.
- R3: software for the protein side-chain conformation problem available through an online server.
- SAS-PRO: a software for sequential and non-sequential structure alignment of proteins available as open-source software in the public domain.
- GPU-BLAST: a software for protein sequence alignment available as open-sourced software in the public domain.

G. Societal and Policy Impacts

No data.

H. Other Professional Activities

Consultant for Aspen Technologies, the leading simulation company for the chemical process industries, October 2020—May 2024.

V. Education

A. Courses Taught

Courses taught at Georgia Tech in the past six years.

Semester, Year	Course Number	Course Title	Number of Students
Fall, 2021	ISyE 4311	Advanced Optimization	55
Spring, 2022	ISyE 6679	Computational Methods	43
Spring, 2022	ChBE 4411	Process Control	118
Fall, 2022	ISyE 4311	Advanced Optimization	62
Spring, 2023	ISyE 6679	Computational Methods	33

Fall, 2023	ISyE 4311	Advanced Optimization	31
Spring, 2024	ISyE 6679	Computational Methods	36
Spring, 2024	ChBE 4411	Process Control	90

B. Individual Student Guidance

B1. Ph.D. Students

B1.a. Graduated Ph.D. Students

At the University of Illinois at Urbana-Champaign and Carnegie Mellon University:

1. Ming-Long Liu, Optimization tools for process planning (Ph.D. in Industrial Engineering, 1995), Associate Professor, Department of Mathematical Sciences, National Chengchi University, Taiwan.
2. Hong Seo Ryoo, Global optimization of multiplicative programs (Ph.D. in Industrial Engineering, 1999), Associate Professor, Department of Industrial Systems and Information Engineering, Korea University, Seoul, Korea.
3. Joseph P. Shectman, Finite algorithms for global optimization of concave programs and general quadratic programs (Ph.D. in Industrial Engineering, 1999), Northfield Information Services, Boston, Massachusetts.
4. Shabbir Ahmed, Strategic planning under uncertainty. Stochastic integer programming approaches (Ph.D. in Industrial Engineering, 2000), Professor, Georgia Institute of Technology, Atlanta, Georgia.
5. Mohit Tawarmalani, Mixed-integer nonlinear programs: Theory, algorithms, and applications (Ph. D. in Industrial Engineering, 2001), Professor, Quantitative Methods Area, Krannert School of Management, Purdue University, West Lafayette, Indiana.
6. Kevin C. Furman, Analytical investigations for heat exchanger network synthesis (Ph.D. in Chemical Engineering, 2002), ExxonMobil Corporate Strategic Research, Annandale, New Jersey.
7. Anastasia Vaia, Least squares problems with applications in parameter estimation in FTIR spectroscopy and X-ray crystallography (Ph.D. in Chemical Engineering, 2003), BPAmoco, Naperville, Illinois.
8. YoungJung Chang, Global optimization in systems biology and bioinformatics (Ph.D. in Chemical Engineering, 2006), Merck, Philadelphia, Pennsylvania.
9. Wei Xie, Optimization algorithms for protein bioinformatics (Ph.D. in Chemical Engineering, 2007), American Airlines Operations Research and Decision Support Group, Fort Worth, Texas.
10. Alexander B. Smith, Optimization techniques for phase retrieval based on single-crystal X-ray diffraction data (Ph.D. in Chemical Engineering, 2008), Pavillion Technologies, Austin, Texas.
11. Luis Miguel Rios, Algorithms for derivative-free optimization (Ph.D. in Industrial Engineering, 2009), Kimberly Clark, Atlanta, Georgia.
12. Xiaowei Bao, Enhancing polyhedral relaxations for global optimization (Ph.D. in Chemical Engineering, 2009), Sabre Decision Technologies, Dallas, Texas.
13. Joseph Elble, Computational experience with linear optimization and related problems (Ph.D. in Industrial Engineering, 2010), Citadel Investment Group, Chicago, Illinois.
14. Aida Khajavirad, Convexification techniques for global optimization of nonconvex nonlinear optimization problems (Ph.D. in Mechanical Engineering, 2011), jointly supervised with J. Michalek, IBM T.J. Watson Research Laboratory, Yorktown Heights, New York.

15. Shweta B. Shah, Optimization models and algorithms for protein structure alignment (Ph.D. in Chemical Engineering, 2011), Nielsen Marketing Analytics, Chicago, Illinois.
16. Apurva Samudra, A systematic framework for molecular design: Methodology and applications (Ph.D. in Chemical Engineering, 2012), Rockwell Simulation, Austin, Texas.
17. Keith Zorn, Exploitation of Intermediate Structures for Global Optimization (Ph.D. Chemical Engineering, 2013), ExxonMobil, Fairfax, Virginia.
18. Yan Zhang, Modeling uncertainty and risk in carbon capture and storage (Ph.D. Chemical Engineering, 2013), BASF, Shanghai, China.
19. Alison Cozad, Data- and theory-driven techniques for surrogate-based optimization (Ph.D. Chemical Engineering, 2014), ExxonMobil, Fairfax, Virginia.
20. Satyajith Amaran, Interactions of uncertainty and optimization: Theory, Algorithms, and applications to chemical site operations (Ph.D. Chemical Engineering, 2014), The Dow Chemical Company, Freeport, Texas.
21. Yash Puranik, Bounds tightening techniques for global optimization of MINLPs (Ph.D. Chemical Engineering, 2016), Rockwell Automation, Austin, Texas.
22. Nick D. Austin, Tools for computer-aided molecular and mixture design (Ph.D. Chemical Engineering, 2017), Scientific Computing & Modelling NV, Amsterdam, The Netherlands.
23. Sreekanth Rajagopalan, Design and maintenance planning problems in commodity distribution and chemical site networks (Ph.D. Chemical Engineering, 2018), The Dow Chemical Company, Freeport, Texas.
24. Zachary T. Wilson, Integer programming applications in data-driven modeling (Ph.D. Chemical Engineering, 2019), Air Liquide, Newark, Delaware.
25. Tong Zhang, Chemical process data analytics via text mining and machine learning (Ph.D. Chemical Engineering, 2019), Alibaba, Beijing, China.
26. Carlos Nohra, Novel relaxation techniques for global optimization of NLPs and MINLPs (Ph.D. Chemical Engineering, 2020), Mitsubishi Electric Research Laboratories, Cambridge, Massachusetts.
27. Benjamin Sauk, GPU algorithms for large-scale optimization (Ph.D. Chemical Engineering, 2020), ExxonMobil, Houston, Texas.
28. Christian Hubbs, Methods and applications of deep reinforcement learning for chemical processes (Ph.D. Chemical Engineering, 2021, jointly supervised with Ignacio E. Grossmann), The Dow Chemical Company, Freeport, Texas.
29. Yijia Sun, Physical properties and chemical product design (Ph.D. Chemical Engineering, 2021), Morgan Stanley, New York, New York.
30. Marissa Engle, Surrogate modeling with gradient information and symbolic regression (Ph.D. Chemical Engineering, 2021), Eli Lilly and Company, Indianapolis, Indiana.
31. Brad J. Johnson, Time series analysis in drug product development and statistical forecasting (Ph.D. Chemical Engineering, 2022), Institute for Defense Analyses, Alexandria, Virginia.
32. Kaiwen Ma, Data-driven strategies for optimization of chemical processes: Algorithms and applications (Ph.D. Chemical Engineering, 2022), The Dow Chemical Company, Freeport, Texas.
33. Owais Sarwar, Algorithms for interpretable high-dimensional regression (Ph.D Chemical Engineering, 2022), Johnson & Johnson, Houston, Texas.
34. Yijiang Li, Decomposition algorithms for certain integer problems over networks (Ph.D. Industrial and Systems Engineering, 2023, jointly supervised with Santanu Dey), Argonne National Laboratory, Lemont, Illinois.

35. Anatoliy Kuznetsov, Convexification and global optimization of problems involving the Euclidean norm (Ph.D. Chemical and Biomolecular Engineering, 2024), Aspen Technology, Boston, Massachusetts.

B1.b. In Process Ph.D. Students

1. Donghyun Oh (co-supervised with Juan-Pablo Correa-Baena in MSE), ChBE.
2. Selin Bayramoglu (co-supervised with George Nemhauser), ISyE.
3. Sourabh Choudhary (co-supervised with Santanu Dey) ISyE.
4. Dimitrios Fardis, ChBE.
5. Mina Kim, Machine Learning, ISyE.

B2. M.S. Students (Indicate Thesis Option for Each Student)

B2.a. Graduated M.S. Students

At the University of Illinois at Urbana-Champaign and Carnegie Mellon University

1. Russ J. Vander Wiel, A decomposition approach for the time-dependent traveling salesman problem (M.S. in Industrial Engineering, 1993), 3M, Minneapolis, Minnesota.
2. Hong Seo Ryoo, Range reduction as a means of performance improvement in global optimization: A branch-and-reduce global optimization algorithm (M.S. in Industrial Engineering, 1995), Associate Professor, Department of Industrial Systems and information Engineering, Korea University, Seoul, Korea.
3. Joseph P. Shectman, A finite algorithm for global minimization of separable concave programs (M.S. in Industrial Engineering, 1995), Northfield Information Services, Boston, Massachusetts.
4. Ramon Gutierrez, A branch-and-bound approach for machine selection in just-in-time manufacturing systems (M.S. in Industrial Engineering, 1996), entrepreneur in Bolivia.
5. Shabbir Ahmed, Robust process planning under uncertainty (M.S. in Industrial Engineering, 1997), Professor, Georgia Institute of Technology, Atlanta, Georgia.
6. Mohit Tawarmalani, Multistage network optimization and decomposition algorithms (M.S. in Industrial Engineering, 1997), Associate Professor, Quantitative Methods Area, Krannert School of Management, Purdue University, West Lafayette, Indiana.
7. Vinay Ghildyal, Design and development of a global optimization system (M.S. in Industrial Engineering, 1997), *i*2 Technologies, India.
8. Nilanjan Adhya, Global optimization of pooling and blending problems (M.S. in Industrial Engineering, 1998), IBM, New York, NY.
9. Minrui Yu, Optimal design of alternative refrigerants (M.S. in Industrial Engineering, 1998), Marconi Communications, Dallas, Texas.
10. Kevin C. Furman, Computational Complexity of heat exchanger network synthesis (M.S. in Chemical Engineering, 1999), ExxonMobil Corporate Strategic Research, Annandale, New Jersey.
11. Yannis Voudouris, A branch-and-bound approach to globally optimal training of feedforward neural networks (M.S. in Chemical Engineering, 1999), Merck & Co., New Jersey.
12. Anastasia Vaia, Quantitative analysis of chemical mixtures using global MINLP optimization (M.S. in Chemical Engineering, 1999), BPAmoco, Naperville, Illinois.
13. Gautam Nanda, Design of efficient secondary refrigerants (M.S. in Chemical Engineering, 2001), US Airways, Arlington, Virginia.
14. Sumit Mehra, Experiments with cutting planes in branch-and-reduce (M.S. in Chemical Engineering, 2001), KPMG Consulting, Chicago, Illinois.

15. Mayank Mishra, Heuristics and approximation schemes for mixed-integer linear programs (M.S. in Chemical Engineering, 2001), Hindusan Lever, Ltd (Unilever-India).
16. Wei Xie, Robust dynamic facility layout under uncertainty (M.S. in Chemical Engineering, 2003), American Airlines Operations Research and Decision Support Group, Fort Worth, Texas.
17. Alexander Barton Smith, Direct methods for X-ray structure determination based on the minimal principle (M.S. in Chemical Engineering, 2006), Pavillion Technologies, Austin, Texas.
18. Benjamin Yung Sheng Ong, Evaluation of advanced Paclitaxel drug delivery implants for controlled release post-surgical treatment against glioblastoma multiform in the brain, M.S. in Chemical and Biomolecular Engineering, 2007, Department of Chemical and Biomolecular Engineering, National University of Singapore, Singapore (main advisor: Chi-Hwa Wong).
19. Joseph Elble, Direct methods for sparse linear systems (M.S. in Industrial Engineering, 2007), Citadel Investment Group, Chicago, Illinois.
20. Joseph Elble, Scaling linear programs: A comprehensive case study (M.S. in Computer Science, 2007), The Optimization Firm, Champaign, Illinois.
21. Xiaowei Bao, Automatic convexity identification for global optimization (M.S. in Chemical Engineering, 2007), Sabre Decision Technologies, Dallas, Texas.
22. Saurabh Awasthi, Molecular docking by derivative-free optimization solvers (M.S. in Chemical Engineering, 2008), Kinapse Information Processing and Consulting, Philadelphia, Pennsylvania.
23. Yiqi Zhu, Computational implementation of a successive linear programming algorithm (M.S. in Chemical Engineering, 2008), Bloomberg L.P., New York, New York.
24. Xuan Shi, Deterministic global optimization in neural network training (M.S. in Chemical Engineering, 2008), Elite Consulting Group, New York, New York.
25. Deepak Channamariyappa, Preprocessing in linear programming (M.S. in Chemical Engineering, 2008), AkzoNobel, Netherlands.
26. Danan Wicaksono, Protein-ligand docking under an algebraic modeling and optimization system (M.S. in Chemical Engineering, 2009), RWTH Aachen University, Germany.
27. Satyajith Amaran, Global optimization of parameter estimation problems (M.S. in Chemical Engineering, 2009), graduate student, Carnegie Mellon University, Pittsburgh, Pennsylvania.
28. Rohan Desai, A comparison of algorithms for optimizing the omega function (M.S. in Chemical Engineering, 2010), ZK Petroleum, Missouri City, Texas.
29. Yizhi Zheng, Pairs trading and portfolio optimization (M.S. in Chemical Engineering, 2011), Bloomberg L.P., New York, New York.
30. Chih-Wei Chu, Certainty equivalence adaptive control with inherent robustness (M.S. in Chemical Engineeering, 2011), Corning, Taiwan.
31. Fernando Monero Leira, Clustering and integer optimization (M.S. in Chemical Engineering, 2011), Spain.
32. Kai-Fu Chang, Modeling and optimization of polymerase chain reaction using derivative-free optimization (M.S. in Chemical Engineering, 2011; co-supervised with J. Schneider), Microfusion Engineering Laboratories, Inc., Norcross, Georgia.
33. Haoqi Wang, Application of derivative-free algorithms in powder diffraction (M.S. in Chemical Engineering, 2011), Taiwan.
34. Jianfeng Liu, Tuning BARON using derivative-free optimization (DFO) algorithms (M.S. in Chemical Engineering, 2012), Purdue University, West Lafayette, Indiana.
35. Judy Chen, Application of derivative-free optimization to influenza epidemic vaccination (M.S. in Chemical Engineering, 2013), Baker Hughes, Canada.

36. Huangqiang Zhao, Application of derivative-free optimization algorithms in crystallization process optimization (M.S. in Chemical Engineering, 2013), OSIsoft, Shanghai.
37. Tianluo Chen, A GPU-based parallel implementation of BLASTN (M.S. in Chemical Engineering, 2013), University of Houston, Houston, Texas.
38. Ye Wang, Optimization of lithium-ion battery with derivative-free optimization algorithms (M.S. in Chemical Engineering, 2013), AspenTech, Houston, Texas.
39. Zhihao Jin, A web-based interface for ALAMO (M.S. in Chemical Engineering, 2013), Amazon, Seattle, Washington.
40. Jingjiang Cheng, A Fortran implementation of ALAMO (M.S. in Chemical Engineering, 2013), INVISTA, Chattanooga, Tennessee.
41. Zilong Wang, PSA-based prostate cancer screening policy optimization with derivative-free optimization algorithms (M.S. in Chemical Engineering, 2013), Rutgers University, Piscataway, New Jersey.
42. Jiaqi Luo, Analysis and testing of solving nonlinear programs with filter (M.S. in Chemical Engineering, 2014).
43. Hua Zheng, Model-And-Search: A derivative-free algorithm and computational experience (M.S. in Chemical Engineering, 2014), Microsoft Research, Seattle, Washington.
44. Weijia Cui, Optimization of lithium–ion batteries with a Comsol model and derivative-free optimization algorithms (M.S. in Chemical Engineering, 2014).
45. Xinyu Nie, ALAMO-based models for the thermodynamic properties of water and steam (M.S. in Chemical Engineering, 2014).
46. Tong Zhang, Medium-term maintenance turnaround planning under uncertainty for integrated chemical sites (M.S. in Chemical Engineering, 2014), Carnegie Mellon University, Pittsburgh, Pennsylvania.
47. Yicheng Ren, Computational experiments with affine arithmetic (M.S. in Chemical Engineering, 2015), Google, Mountain View, California.
48. Atharv Bhosekar, Branch-And-Model: A derivative-free optimization algorithm and computational experience (M.S. in Chemical Engineering, 2015), visiting researcher, Carnegie Mellon University, Pittsburgh, Pennsylvania.
49. Ananya Chowdhury, Modeling, simulation and derivative-free optimization of Lithium-ion batteries (M.S. in Chemical Engineering, 2015), Process Systems Enterprise, Cedar Knolls, New Jersey.
50. Yunli Han, Effect of low-discrepancy sequence in ALAMO: Hammersley and Halton sequences (M.S. in Chemical Engineering, 2015).
51. Siyu Liu, Effect of low-discrepancy sequence in ALAMO: Sobol sequences (M.S. in Chemical Engineering, 2015).
52. Tapas Peshin, Crude oil price and Dow Jones Industrial Average forecasting using machine learning (M.S. in Chemical Engineering, 2015).
53. Gongda Ge, Computational investigation of the impact of A-optimal design on ALAMO (M.S. in Chemical Engineering, 2016).
54. Hejun Li, Computational investigation of the impact of D-optimal design on ALAMO (M.S. in Chemical Engineering, 2016).
55. Zehua Lyu, Computational investigation of the impact of I-optimal design on ALAMO (M.S. in Chemical Engineering, 2016).
56. Teng Nie, Computational investigation of the impact of D-optimal design via Monte Carlo on ALAMO (M.S. in Chemical Engineering, 2016).
57. Bhavana Rao, A user-friendly method to select basis functions for ALAMO (M.S. in Chemical Engineering, 2016).

58. John Villaraga, Multi-agent system for supply chain automation (M.S. in Chemical Engineering, 2017).
59. Yurong Diao, Discretization for the standard pooling problem (M.S. in Chemical Engineering, 2017).
60. Shashwat Koranne, Optimization of multilayer perceptron (joint work with Hardik Panchal) (M.S. in Chemical Engineering, 2017).
61. Hardik Panchal, Optimization of multilayer perceptron (joint work with Shashwat Koranne) (M.S. in Chemical Engineering, 2017).
62. Sahir Chichkar, Development of high-fidelity quantitative structure property relationships for organic photovoltaics (M.S. in Chemical Engineering, 2017).
63. Yuting Huang, A systematic review and comparison of existing HPLC software (M.S. in Chemical Engineering, 2017).
64. Yao Li, Tuning mixed integer programming solvers using derivative-free optimization algorithms (M.S. in Chemical Engineering, 2017).
65. Gaopo Liu, Tuning nonlinear programming solvers using derivative-free optimization algorithms (M.S. in Chemical Engineering, 2017).
66. Navneet Singh, Implementation of cycle inequalities for bilinear optimization problems (M.S. in Chemical Engineering, 2017).
67. Abhijeet Alshi, Machine learning with ALAMO: Fuel consumption estimation (M.S. in Chemical Engineering, 2018).
68. Aakash Bhatia, Text analytics for predictive maintenance (joint work with Darshan Pandya) (M.S. in Chemical Engineering, 2018).
69. Aditya Chindhade, Techniques for group-wise feature selection and estimation (M.S. in Chemical Engineering, 2018).
70. Kedar Dabhadkar, Data-driven modeling of reactor temperature profiles (joint work with Kshitij Ingale) (M.S. in Chemical Engineering, 2018).
71. Reshma Gajula, Machine learning with ALAMO: Website phishing (M.S. in Chemical Engineering, 2018).
72. Kshitij Ingale, Data-driven modeling of reactor temperature profiles (joint work with Kedar Dabhadkar) (M.S. in Chemical Engineering, 2018).
73. Rishabh Kumar, Diagnosis of breast cancer using machine learning techniques on the Wisconsin dataset (M.S. in Chemical Engineering, 2018).
74. Darshan Pandya, Text analytics for predictive maintenance (joint work with Aakash Bhatia) (M.S. in Chemical Engineering, 2018).
75. Rohit Tawde, Energy efficiency prediction (M.S. in Chemical Engineering, 2018).
76. Aman Wagadre, Human activity recognition using ALAMO (M.S. in Chemical Engineering, 2018).
77. Swapnil Agrawal, Integration of coordinate descent and machine learning for black-box optimization (M.S. in Chemical Engineering, 2019).
78. Zhenjie Jia, Computational study of data preprocessing methods and machine learning classification algorithms for software bug prediction (joint work with Xinyi Xie) (M.S. in Chemical Engineering, 2019).
79. Lihan Liu, Integrated machine learning and optimization in Python (M.S. in Chemical Engineering, 2019).
80. Kanishk Mair, Black-box optimization using coordinate search with accelerated gradient descent (M.S. in Chemical Engineering, 2019).
81. Muyi Song, Machine learning assisted cyclic coordinate descent algorithm for scalable black-box optimization (M.S. in Chemical Engineering, 2019).
82. Xinyi Xie, Computational study of data preprocessing methods and machine learning classification algorithms for software bug prediction (joint work with Zhenjie Jia) (M.S. in Chemical Engineering, 2019).

83. Xinliang Zhao, Predicting parallel algorithm performance with machine learning (M.S. in Chemical Engineering, 2019).
84. Yao Zhao, Black-box optimization with five different searching techniques (M.S. in Chemical Engineering, 2019).

B2.b. In Process M.S. Students

1. Xingjiang Tao, ISyE and CSE.

B3. Undergraduate Students

At the University of Illinois at Urbana-Champaign and Carnegie Mellon University:

1. Hussain Arsiwalla, Computational experiments with the branch-and-reduce algorithm for global optimization (BS thesis), 1999.
2. Hermioni Zouridis, Design of fire suppressants via global optimization (BS thesis), 2003.
3. Chi-Fu Yin, Mathematical modeling of the eye, 1998–1999.
4. Andy Miller, Robust control with mixed H_2/H_∞ performance objectives, Fall 2002.
5. Mark Lawrence, Design of solvents via mixed-integer optimization, Spring 2003.
6. Choi Teng Ho, Design of aircraft deicing fluids, Spring 2009.
7. Jiaying Li, Techno-economic analysis of a novel gold extraction and recovery process, Spring 2017.

B4. Service on Thesis or Dissertation Committees

B4.a. Internal

Doctoral Candidate (School, Advisor)	PhD Proposal	Defense
1. Taehun Kim (ChBE, Fani Boukouvala)	5/18/21	2/7/23
2. Xiaoyi Gu (ISyE, Santanu Dey)	4/28/21	7/5/22
3. Bowen Mu (ChBE, Joe Scott)	8/12/21	
4. Pengfei Cheng (ChBE, Santanu Dey)	11/19/21	7/11/24
5. Jason Ye (ChBE, Joe Scott)	12/17/21	4/15/24
6. Gad Ilunga (ECE, Athanasios Meliopoulos)		5/31/22
7. Suryateja Ravutla (ChBE, Fani Boukouvala)	6/15/22	
8. Shangkun Wang (ISyE, Roshan Joseph)	4/19/23	
9. Prachi Shah (ISyE, Santanu Dey)	2/5/24	
10. Zain Shabeeb (ChBE, Vida Jamali)	5/21/24	
11. Dahye Han (ISyE, Santanu Dey)	11/5/24	

At Carnegie Mellon University

Candidate (ChE unless noted)	PhD Proposal	Defense
1. Ramkumar Karuppiah		9/13/07
2. Fengqi You	12/19/07	10/22/09
3. Yuan Xu		5/21/08
4. Michael Wartmann	8/8/08	4/20/10
5. Rui Huang	8/22/08	12/17/10
6. Sree Rama Raju	12/12/08	1/20/11
7. Ravindra Kamath	12/18/08	
8. Juan Pablo Ruiz	1/6/09	4/25/11
9. Lidio Meireles (CMU/Pitt Computational Biology)		1/29/09

10.	Abdulrahman Alattas	2/18/09	5/18/12
11.	Rodrigo Lopez-Negrete de la Fuente	10/20/09	
12.	Sylvain Mouret	2/6/09	8/27/10
13.	Aida Khajavirad (ME)	5/18/09	8/23/11
14.	Vijay Gupta	11/17/10	4/26/13
15.	Robert Smith	1/20/11	4/26/13
16.	Anita Lee	3/16/11	4/26/13
17.	Sebastian Terrazas		4/21/11
18.	Karthikeyan Marimuthu	11/19/12	4/25/14
19.	Sumit Mitra	11/22/11	5/2/13
20.	Lu Xie (Computational Biology)	11/30/12	2/17/15
21.	Bruno Calfa	12/20/12	4/20/15
22.	Alex Dowling	1/10/13	4/17/15
23.	Pablo Garcia-Herreros	11/18/13	12/15/15
24.	Francisco Trespalacios	11/20/13	9/25/15
25.	Mingzhao Yu	1/21/14	4/21/17
26.	Wei Wan	1/22/15	8/2/17
27.	Nikolaos Lappas	12/8/15	9/24/18
28.	Markus Druven	11/30/15	4/27/17
29.	John Eason	1/12/16	4/23/18
30.	Juan Morinelly	1/19/16	10/25/17
31.	Devin Griffith	1/21/16	6/1/18
32.	Jun Shi		4/27/16
33.	Bethany Nicholson		4/28/16
34.	Cristiana Lara	12/13/16	5/2/19
35.	Braulio Brunaud	12/14/16	2/21/19
36.	Yajun Wang	1/25/17	1/30/19
37.	Robert Apap		7/31/17
38.	David Thierry	8/30/17	12/11/19
39.	Qi Chen	11/15/17	4/30/20
40.	Akang Wang	11/27/17	4/22/20
41.	Yixin Ye	11/29/17	4/29/20
42.	Can Li	11/29/18	4/30/21
43.	Natalie Isenberg	1/18/19	9/17/21
44.	Saif Kazi	1/31/19	6/11/21
45.	Yunhan Wen	2/4/19	7/30/21
46.	David Bernal	2/20/19	5/3/21
47.	Noriyuko Noshio	8/2/19	7/15/21
48.	Can Ekinci	8/18/19	8/4/22
49.	Hua Wang	1/14/20	8/22/22
50.	Zicheng Cai	1/17/20	4/30/20
51.	Robert Parker	1/20/20	8/9/22
52.	Aliakbar Izadkhah	12/21/20	9/19/23
53.	Will Strahl	1/14/22	
54.	Jason Sherman	2/7/23	

At the University of Illinois at Urbana-Champaign

Candidate (Unit; ChBE unless noted)		Preliminary Exam	Final Exam
1.	Pan Michaleris (TAM)	4/17/92	10/4/93

2.	Curtis Louis Stowers (MIE)	9/25/92	9/13/93
3.	Yi Zhang (MIE)	10/31/94	5/22/95
4.	Elias Kourpas (Business)	12/13/94	4/26/97
5.	Dragan Miljkovic (Agricultural Economics)		8/26/96
6.	Jeremy G. Van Antwerp	5/1/97	4/8/99
7.	Ernesto Rios-Patron	12/10/97	12/8/99
8.	Antonios Doufas	6/12/98	
9.	Efimia Metsi	8/9/98	
10.	Timothy J. Pricer	11/23/98	
11.	Eric R. Bromiley	2/10/99	
12.	Fred Thomas	3/11/99	9/6/00
13.	Leo Hao-Tien Chiang	4/25/00	7/13/01
14.	Timokleia Togkalidou	9/8/00	8/29/02
15.	Joshua R. Gray	4/26/01	6/30/04
16.	Rudiyanto Gunawan	3/22/01	7/23/03
17.	Zhengguang Wang	4/30/01	12/2/03
18.	Derek E. Armstrong (MIE)	5/14/01	
19.	Lars K. Henricksen	3/13/03	
20.	Su Y. Ha (CHBE)	2/25/04	7/15/05
21.	Karuppiah Chockalingam	5/17/04	
22.	Andrew Dalton	4/27/04	
23.	Shivani Agarwal (CS)	12/8/04	4/11/05
24.	Vijay Gopalakrishnan	2/21/05	
25.	William E. Smith	3/7/05	
26.	Li Ang	4/4/05	
27.	Joshua D. Isom	4/8/05	
28.	Michael Mitchell	7/11/05	12/14/06
29.	Xi Zhu		7/28/05
30.	Kim Seng Cheong	1/26/06	

B4.b. External

M.S. thesis committees (name of candidate, institution, date)

1. Thekra Behbehani, Kuwait University, Department of Chemical Engineering, Safat, Kuwait, 11/6/99.
2. Ghanima Al-Sharrah, Kuwait University, Department of Chemical Engineering, Safat, Kuwait, 6/13/00.
3. Mufreh Saeed Al-Rashidi, Kuwait University, Department of Chemical Engineering, Safat, Kuwait, 6/27/02.

Doctoral thesis committees (name of candidate, institution, date)

1. Gavin Jon Bell, University of Canterbury, Department of Management, Canterbury, New Zealand, 10/27/98.
2. Adriaan Jacobus Quist, Delft University of Technology, Department of Statistics, Probability and Operations Research, Delft, The Netherlands, 5/29/00.
3. Kaj-Mikael Björk, Åbo University, Department of Chemical Engineering, Åbo, Finland, 11/22/02.
4. Danielle Zyngier, McMaster University, Department of Chemical Engineering, Hamilton, Canada, 7/13/06.

5. Hong Choon Oh, National University of Singapore, Department of Chemical and Biomolecular Engineering, Singapore, 4/6/09.
6. Nikolaos Ploskas, University of Macedonia, Department of Applied Informatics, Thessaloniki, Greece, 12/20/13.
7. Morteza Kimiaei, University of Vienna, Faculty of Mathematics, Vienna, Austria, 6/15/21.
8. Beryl Ramadhian Aribowo, University of Vienna, Faculty of Mathematics, Vienna, Austria, 11/13/24.
9. Tanuj Karia, Imperial College London, Department of Chemical Engineering, London, England, 11/4/24.

Habilitation thesis committees (name of candidate, institution, date)

1. Dr. Ivo Novak, Humboldt-University Berlin, Faculty of Mathematics and Natural Sciences II, Department of Mathematics, Berlin, Germany, February 2004.
2. Dr. Oleg Shcherbina, University of Vienna, Faculty of Mathematics, Department of Mathematics, Vienna, Austria, April 2013.

B5. Mentorship of Postdoctoral Fellows or Visiting Scholars

B5.a. Postdoctoral Fellows

1. Dr. Joseph Elble, joined Citadel Investment Group, Chicago, Illinois.
2. Dr. YoungJung Chang, joined Merck, New Jersey.
3. Dr. Aida Khajavirad, joined IBM TJ Watson Lab, New York after her first postdoc and The University of Texas at Austin after her second postdoc in my group.
4. Dr. Panos Vouzis, became cofounder of NetBeez, Inc., San Francisco, California.
5. Dr. Mustafa Kılınç, joined ExxonMobil, Houston, Texas.
6. Dr. Nikolaos Ploskas, became Assistant Professor at the University of Western Macedonia, Greece.
7. Dr. Jonggeol Na, became Assistant Professor at Ewha Woman's University, Seoul, Korea.
8. Dr. Daniel Groom, joined Ascend Elements.

B5.b. Visiting Scholars

1. Dr. Zhihong Yuan, Tsinghua University, China, became Professor, Tsinghua University, China, 2012.
2. Dr. Yi-Jun He, Professor from Shanghai Jiao Tong University, Shanghai, China, 2013.
3. Kai Zhou, doctoral student from Zhejiang University, China, 2014-2015, joined Alibaba, China.
4. Yi Zhang, doctoral student from Zhejiang University, China, 2017-2018, joined Alibaba, China.
5. Shaohan Chen, doctoral student from Zhejiang University, China, 2018.
6. Sen Xue, doctoral student from Zhejiang University, China, 2023.
7. Xiaoyu Luo, doctoral student from Zhejiang University, China, 2024.

C. Educational Innovations and Other Contributions

- New courses developed
    - Approximation Algorithms (F00)
    - Algorithms for Bioinformatics (F03, jointly with CS faculty Skeel and Zhai)

    - Metabolic Engineering (F08)
    - Chemical Product Design (S08)
    - Computational Aspects of the Simplex Method (F09)
    - Computer Science for Chemical Engineers (S15)
    - Process Systems Modeling (S20)
    - Computational Methods: A GPU HPC course (S22, S24, S25)
- Courses taught
    - Optimization (S91, S08, S09, S10, S11, S12, S13)
    - Integer Programming (F91, S93, S95, F96)
    - Introduction to Operations Research (S92, F92, F93, F94, F97)
    - Linear Programming (S94, F95, S97)
    - Nonlinear Programming (S96)
    - Synthesis and Design of Chemical Systems (S98, S01)
    - Applied Mathematics (F98)
    - Global Optimization (S99)
    - Chemical Process Control and Dynamics (F00, F01, F02, F03, S22, S24)
    - Approximation Algorithms (F00)
    - Metabolic Engineering (S02, S03, S04, S05, S07, F08)
    - Algorithms in Bioinformatics (F03)
    - Computational Aspects of the Simplex Method (F04, F09, F10, F11, F12)
    - Chemical Product Design (S08, S09, S10, S11, S12, S13)
    - Process Thermodynamics (F14, F15, F17, F18)
    - Computer Science for Chemical Engineers (S15, S16, S17, S18, S19, F19)
    - Graduate Thermodynamics (F16)
    - Process Systems Modeling (S20)
    - Advanced Optimization (F21, F22, F23)
- Short courses and workshops
    - Introduction to Global Optimization: A two-day short course, Åbo University, Åbo, Finland, August 20-21, 1998 (18 students)
    - Global Optimization with BARON: An intense half-day short course as part of the *Workshop on Global Optimization with GAMS*, Washington, DC, September 18, 2003 (15 students)
    - Advanced Topics in Optimization: An intense short course on global optimization (three days) and optimization under uncertainty (one day), December 13-16, 2004, Plapiqui, Bahia Blanca, Argentina (20 students)
    - Global Optimization and Optimization under Uncertainty: An intense one-day short course as part of the *Pan American Advanced Studies Institute*, August 18, 2005, Iguazú, Argentina (69 students)
    - Global Optimization: An intense one-week short course at the Department of Applied Mathematics, University of Vienna, Vienna, Austria, March 31—April 4, 2014 (12 students)
    - Global Optimization and Optimization under Uncertainty: An intense one-day short course as part of the *CAPD short course*, Carnegie Mellon University, Pittsburgh, PA, 2008—present (20-50 students every year)

VI. Service

A. Professional Contributions

A1. Editorial Board Memberships

- Editor-in-Chief, *Optimization and Engineering,* 2018–2023
- Incoming Editor-in-Chief, *Mathematical Programming Computation,* Effective July 1, 2025
- Consulting Editors Board, *AIChE Journal*, 2017– present
- Editorial Advisory Board, *Industrial & Engineering Chemistry Research*, 2001–2003
- Editorial Boards:
  - *Computational Management Science,* 2010–present
  - *Computational Optimization and Applications*, handling editor for 4 papers, 2020–present
  - *Journal of Global Optimization*, handling editor for 87 papers, 1997–present
    - Best paper selection committee, 2024
  - *Mathematical Programming Computation*, handling editor for 36 papers, 2008–2025
  - *Operational Research—An International Journal*, 2016–present
  - *Operations Research Forum,* handling editor for 4 papers, 2019–2024
  - *Optimization and Engineering*, handling editor for 56 papers, 1999–2017, 2024–present
  - *Optimization Letters*, handling editor for 29 papers, 2005–present
  - *Optimization Methods and Software*, handling editor for 53 papers, 2007–2020
    - Broyden Prize Selection Committee, 2009–2016
  - *Royal Society Proceedings A*, handling editor for 17 papers, 1/2014–12/2016
  - *Global World* (online), 2001–2020
  - *MINLP World* (online), 2001–2020
  - *Performance World* (online), 2002–2020
- Editorial Review Board, *International Journal of Operations and Quantitative Management*, 1994–2004

A2. Society Offices, Activities, and Membership

Membership

- American Institute of Chemical Engineers, 1986–present
  - Computers and Systems Technology Division
  - Food, Pharmaceutical, and Bioengineering Division
- Mathematical Optimization Society (former Mathematical Programming Society), 1987–present
- Institute for Operations Research and the Management Sciences (former ORSA/TIMS), 1987–present
  - Computing Society (former Computer Science Technical Section)
  - Optimization Society (former Optimization Section)
- Society for Industrial and Applied Mathematics, 1989–present
  - Life Sciences Technical Section
  - Optimization Technical Section
- American Association for the Advancement of Science, 1991–2005
- American Chemical Society, 1991–present
  - Computers in Chemistry Division
- Institute of Industrial and Systems Engineers, 2020–present
- International Society for Computational Biology, 2002–2014
- Society for Mathematical Biology, 2002–2012
- American Crystallographic Association, 2002–present
- Institute of Electrical and Electronics Engineers, 2003–2005
  - Control Systems Society
  - Systems, Man, and Cybernetics Society

- Association for Computing Machinery, 2003–present
  - Special Interest Group on Algorithms and Computation Theory
  - Special Interest Group on Symbolic and Algebraic Manipulation
- Pittsburgh Diffraction Society, 2008–present
- International Society of Global Optimization, 2010–present

Offices and Committees

- *INFORMS* (former *ORSA/TIMS*):
  - Finance committee member, 1999–2001
  - Primary student contact at UIUC, 1996–2007
  - Subdivisions Council, 2011–2012
  - *Optimization Society*
    - Most recent past chair, 2011
    - Chair, 2009–2010
    - Chair Elect, 2008
    - Young Researcher Prize committee chair, 2010, 2015
    - Young Researcher Prize committee member, 2004, 2006, 2013
    - Farkas Prize selection committee member, 2018, 2022
    - Farkas Prize selection committee chair, 2023
    - Vice Chair for Global Optimization, 1998–2000
    - Secretary/Treasurer, 1996–1998
    - Web Master, 1996–2010
  - *Computing Society* (former *Computer Science Technical Section*)
    - Student paper award committee, 2008
    - Board of Directors, Jan. 2005–Dec. 2007
    - ICS Prize committee member, 1997, 2014, 2015, 2024
    - ICS Prize committee chair, 2016
    - Programming Vice Chair, 2011-2013
- International Society of Global Optimization
  - Vice President for North and South America, 2017–present
  - Young Researcher Prize Committee, 2023
- *Mathematical Optimization Society*
  - 2009 Beale-Orchard-Hays Prize committee chair
  - ICCOPT Steering Committee, 2013-2018
- Area 10c of *AIChE* (*Computers in Operations and Information Processing*):
  - 1999 Programming Coordinator
- Area 10 of *AIChE* (*Computers And Systems Technology* Division)
  - Executive Committee, 1996–1999
  - Awards Committee, 1997, 2011
  - Programming Vice Chair, 2012–2013
  - Programming Chair 2013–2016
  - Most recent programming Chair 2017–2019
- Pittsburgh Diffraction Society
  - Chung Soo Yoo Award Committee, 2008
- Society for Industrial and Applied Mathematics
  - SIAG/OPT Nomination Committee, 2022
  - SIAG/OPT Best Paper Prize, 2022

A3. Organization and Chairing of Technical Sessions, Workshops, and Conferences

Conference organizer and chair

1. Conference Co-Chair, Foundations of Computer-Aided Process Operations 2012 (FOCAPO 2012), Savannah, Georgia, January 8-11, 2012.
2. Conference Co-Chair, Workshop on Mixed-Integer Nonlinear Programming (MINLP 2014), Pittsburgh, Pennsylvania, June 2-5, 2014.
3. Conference Co-Organizer, Workshop on Linear and Non-Linear Mixed Integer Optimization, Institute for Computational and Experimental Research in Mathematics, Providence, Rhode Island, February 27 – March 3, 2023.

Conference local organizing committees

1. 22nd International Symposium on Mathematical Programming (ISMP 2015), Pittsburgh, Pennsylvania, July 12-17, 2015.

Conference advisory committees

1. International Program Committee, International Workshop on Global Optimization, Firenze, Italy, September 1999.
2. Academic Advisory Committee, Foundations of Computer Aided Process Operations 2003 (FOCAPO 2003), Coral Springs, Florida, January 2003.
3. Organizing Committee, NSF Symposium on Supply Chain Management in Process Industries, University of Minnesota, Minneapolis, May 2004.
4. Scientific Committee, International Conference on Complementarity, Duality, and Global Optimization in Science and Engineering (CDGO-2005), Virginia Tech, Blacksburg, Virginia, August 2005.
5. Program Committee, Workshop on Interval Analysis and Constraint Propagation for Applications (IntCP 2006), Nantes, France, September 2006.
6. Program Committee, DIMACS and ExxonMobil Workshop on Computational Optimization and Logistics Challenges in the Enterprise (COLCE), Annandale, New Jersey, April 2006.
7. Program Committee, 2006 INFORMS Optimization Society Conference on Optimization and HealthCare, San Antonio, Texas, February 2006.
8. Program Committee, 5th International Workshop on Biological Data Management (BIDM'07), Regensburg, Germany, September 2007.
9. Program Committee, 2nd International Conference on Bioinformatics Research and Development (BIRD'08), Vienna, Austria, July 2008.
10. Computational Management Sciences, Imperial College, London, March 2008.
11. International Scientific Committee, International Conference on Engineering Optimization (EngOpt 2008), Rio de Janeiro, Brazil, Junine 2008.
12. Technical Advisory Committee, Foundations of Computer Aided Process Operations 2008 (FOCAPO 2008), Cambridge, Massachusetts, June-July 2008.
13. Program Committee, CPAIOR 2009: The 6th International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems, Pittsburgh, PA, May 2009.
14. Scientific Program Committee, Computational Management Science, Geneva, Switzerland, May 2009.
15. International Program Committee, Foundations of Systems Biology in Engineering (FOSBE 2009), Denver, Colorado, August 2009.
16. Technical Advisory Committee, Foundations of Computer Aided Process Design 2009 (FOCAPD 2009), Breckenridge, Colorado, June 2009.

17. Program Committee, Workshop on Computational Optimization, Wisła, Poland, October 18-20, 2010.
18. International Scientific Committee, 2nd International Conference on Engineering Optimization (EngOpt 2010), Technical University of Lisbon, Portugal, 6-9 September 2010.
19. Program Committee, 1st International Conference on Information Technology in Bio- and Medical-Informatics (ITBAM 2010), Bilbao, Spain, Aug. 30-Sept. 3, 2010.
20. Scientific Program Committee, Computational Management Science, Vienna, Austria, July 2010.
21. Scientific Program Committee, 8th International Conference on Computational Management Science (CMS 2011), University of Neuchatel, Switzerland, 28-30 April 2011.
22. Program Committee, 2nd International Conference on Information Technology in Bio- and Medical-Informatics (ITBAM 2011), Toulouse, France, Aug. 29-Sept. 2, 2011.
23. International Program Committee, 21st European Conference on Process Systems Engineering (ESCAPE), Porto Carras Grand Resort, Chalkidiki, Greece, 29 May-1 June 2011.
24. Programming Committee, 2011 SIAM Optimization Meeting, Darmstadt, Germany, May 2011.
25. Program Committee, 3rd International Conference on Information Technology in Bio- and Medical-Informatics (ITBAM 2012), Vienna, Austria, Sep. 3-Sept. 7, 2012.
26. Advisory Committee, 2012 INFORMS Optimization Society Conference, Coral Gables, Florida, February 24-26, 2012.
27. Program Committee, Foundations of Systems Biology in Engineering (FOSBE 2012), Tsuruoka, Japan, October 21-25, 2012.
28. Scientific Program Committee, 9th International Conference on Computational Management Science (CMS 2012), Imperial College, London, U.K., 19-20 April 2012.
29. Program Committee, Fourth International Conference on Continuous Optimization (ICCOPT), Lisbon, July 29-Aug. 1, 2013.
30. International Symposium on Foundations and Applications of Big Data Analytics (FAB 2015), Paris, France, August 27-28, 2015.
31. International Workshop on Machine learning, Optimization and big Data (MOD 2015), Taormina (Sicily), Italy, July 21-24, 2015.
32. Second International Conference on "Energy, Sustainability and Climate Change" ESCC 2015, Crete, Greece, June 21-27, 2015.
33. Advisory Committee, World Congress on Global Optimization (WCGO 2015), Gainesville, Florida, February 22-25, 2015.
34. International Program Committee, PSE-2015/ESCAPE25, Copenhagen, Denmark, May 31-June 4, 2015.
35. Program Committee, International IEEE Symposium on Big Data Management and Analytics (BIDMA 2016), Calgary, Alberta, Canada, April 25-26, 2016.
36. Scientific Committee, 26th European Symposium on Computer Aided Process Engineering (ESCAPE 26), Portorož, Slovenia, June 12-15, 2016.
37. Program Committee, International Symposium on Foundations and Applications of Big Data Analytics (FAB 2016), UC Davis - Davis, California, August 20-21, 2016.
38. Program Committee, Machine learning, Optimization and big Data (MOD 2016), Volterra, Italy, August 26-29, 2016.
39. International Scientific Committee, XIII Global Optimization Workshop (GOW'16), Braga, Portugal, 4-8 September, 2016.
40. Technical Advisory Committee, Foundations of Computer Aided Process Operations 2017 (FOCAPO 2017), Tucso, Arizona, January 2017.
41. Program Committee, Global Optimization Conference (GOC-2017), Texas A&M University, March 30-April 1, 2017.

42. Program Committee, International IEEE Symposium on Big Data Management and Analytics (BIDMA 2017), Calgary, Alberta, Canada, April 17-18, 2017.
43. Program Committee, 17th Baikal International School-Seminar "Methods of optimization and their application", Melentiev Energy Systems Institute, Irkutsk, Russia, July 31-August 6, 2017.
44. Program Committee, International Symposium on Foundations and Applications of Big Data Analytics (FAB 2017), Sydney, Australia, August 1-3, 2017.
45. Program Committee, The 23rd International Conference on Principles and Practice of Constraint Programming (CP 2017), Melbourne, Australia, August 28 - September 1, 2017.
46. Program Committee, The 3rd International Workshop on Machine learning, Optimization and big Data (MOD 2017), Volterra (Pisa), Tuscany, Italy, September 17-21, 2017.
47. Program Committee, 4th International Conference on Optimization Methods and Software, December 16-20, 2017, Havana, Cuba.
48. International Program Committee, Process Systems Engineering (PSE-2018), San Diego, California, July 1-5, 2018.
49. Program Committee, The 3rd International Triennial Conference and Summer School 'Numerical Computations: Theory and Algorithms' (NUMTA2019), Calabria, Italy, June 15-21, 2019.
50. Program Committee of the 13th Learning and Intelligent Optimization Conference (LION 13), Chania, Greece, May 27-31, 2019.
51. Scientific Advisory Board, Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES2019), Dubrovnik, Croatia, October 1-6, 2019.
52. Program Committee, The 6th International Conference on machine Learning, Optimization & Data science - An Interdisciplinary Conference: Deep Learning, Optimization and Big Data without Borders, Certosa di Pontignano (Siena) Tuscany, Italy July 19-22, 2020.
53. Technical Advisory Committee, Foundations of Computer Aided Process Operations and Chemical Process Control 2023 (FOCAPO/CPC 2023), January 2023.

Cluster organizer and chair

1. Six sessions, "Operations research and chemical engineering design," *International Federation of Operational Research Societies, Fourth Specialized Conference: Operations Research and Engineering Design*, St. Louis, Montana, October 1995.
2. Two sessions, "Stochastic integer programming," *INFORMS Annual Meeting*, Seattle, Washington, October 1998.
3. Six sessions, "Optimization section: Global optimization," *INFORMS Annual Meeting*, Philadelphia, Pennsylvania, November 1999.
4. Five sessions, "Optimization section: Global optimization," *INFORMS Annual Meeting*, Cincinnati, Ohio, May 1999.
5. Three sessions, "Computational global optimization," *INFORMS Annual Meeting*, San Francisco, California, November 2005.
6. Cluster on "Bioinformatics and systems biology" (five sessions), *INFORMS Annual Meeting*, Seattle, Washington, November 2007, co-organized with Allen Holder and Leo Lopes.
7. Stream on "Global optimization" (six sessions), *2nd International Conference on Continuous Optimization (ICCOPT II)*, Hamilton, Ontario, Canada, August 2007, co-organized with Mohit Tawarmalani.
8. Cluster on "Bioinformatics and systems biology" (five sessions), *INFORMS Annual Meeting*, Washington, DC, October 2008, co-organized with Leo Lopes.
9. Cluster on "Global optimization" (twenty sessions), *International Symposium on Mathematical Programming*, Chicago, Illinois, August 2009, co-organized with Chris Floudas.

10. Cluster on "Surrogate and derivative-free optimization" (five sessions), *INFORMS Annual Meeting*, Charlotte, North Carolina, November 2011, co-organized with Christine Shoemaker.
11. Mini-Cluster on "Surrogate and derivative-free optimization" (five talks), *INFORMS Annual Meeting*, Phoenix, Arizona, October 2012, co-organized with Christine Shoemaker.
12. Cluster on "Global optimization" (sixteen sessions), *International Symposium on Mathematical Programming*, Berlin, Germany, August 2012, co-organized with Chris Floudas.
13. Cluster on "Global optimization", *Fifth International Conference on Continuous Optimization (ICCOPT)*, Tokyo, Japan, August, 2016, co-organized with Chris Floudas.

Invited sessions organized and chaired

1. "Issues in global optimization," *ORSA/TIMS Annual Meeting*, Phoenix, Arizona, November 1993.
2. "Global optimization algorithms and applications—II," *INFORMS Annual Meeting*, Atlanta, Georgia, November 1996.
3. "Global optimization algorithms and applications—I," *INFORMS Annual Meeting*, Atlanta, Georgia, November 1996.
4. "Global optimization algorithms and applications," *INFORMS Annual Meeting,* Dallas, Texas, October 1997.
5. "Global optimization: Algorithmic and computational advances II," *Mathematical Programming Symposium*, Lausanne, Switzerland, August 1997.
6. "Global optimization: Algorithmic and computational advances I," *Mathematical Programming Symposium*, Lausanne, Switzerland, August 1997.
7. "Applications of global optimization," *INFORMS Annual Meeting*, San Diego, California, May 1997.
8. "Advances in global optimization," *INFORMS Annual Meeting,* Seattle, Washington, October 1998.
9. "Stochastic integer programming," *INFORMS Annual Meeting,* Seattle, Washington, October 1998.
10. "Advances in global optimization," *INFORMS Annual Meeting*, Philadelphia, Pennsylvania, November 1999.
11. "Solving hard combinatorial optimization problems," *INFORMS Annual Meeting,* Cincinnati, Ohio, May 1999.
12. "Advances in global optimization," *INFORMS Annual Meeting*, San Antonio, Texas, November 2000.
13. "Advances in stochastic integer programming," *INFORMS Annual Meeting*, San Antonio, Texas, November 2000.
14. "Advances in global optimization," *International Symposium on Mathematical Programming*, Atlanta, Georgia, August 2000.
15. "Recent advances in convexification," *INFORMS Annual Meeting*, Miami Beach, Florida, November 2001.
16. "Recent advances in global optimization," *INFORMS Annual Meeting*, Miami Beach, Florida, November 2001.
17. "Large-scale optimization," *INFORMS Annual Meeting*, Miami Beach, Florida, November 2001.
18. "Global optimization software," *INFORMS Annual Meeting*, San Jose, California, November 2002.
19. "Linear programming," *INFORMS Annual Meeting*, Denver, Colorado, October 2004.
20. "Algorithms and software for linear programming," *INFORMS Annual Meeting*, Denver, Colorado, October 2004.

21. "LP and SDP approaches to global optimization," *INFORMS Annual Meeting*, San Francisco, California, November 2005.
22. "Computational global optimization," *INFORMS Annual Meeting*, San Francisco, California, November 2005.
23. "Black-box optimization," *INFORMS Annual Meeting*, Pittsburgh, Pennsylvania, November 2006.
24. "Sphere packing," *INFORMS Annual Meeting*, Pittsburgh, Pennsylvania, November 2006.
25. "Nonconvex optimization," *INFORMS Optimization Society Meeting*, Atlanta, Georgia, March 2008.
26. "Advances in global optimization," *INFORMS Annual Meeting*, Washington, DC, October 2008.
27. "Global optimization," *International Symposium on Mathematical Programming*, Chicago, Illinois, August 2009, co-organized with Chris Floudas.
28. "Derivative-free optimization," *Computational Management Science*, Geneva, Switzerland, May 2009.
29. "Derivative-free optimization," *Computational Management Science 2010*, Vienna, Austria, July 2010.
30. "Computational Aspects of the Simplex Algorithm," *Computational Management Science 2010*, Vienna, Austria, July 2010.
31. "Computing with GPUs," *INFORMS Annual Meeting*, Austin, Texas, November 2010.
32. "Optimization Society Prizes," *INFORMS Annual Meeting*, Austin, Texas, November 2010.
33. "Model-based integrated design of pharmaceutical drug product and processes," *AIChE Annual Meeting*, Salt Lake City, Utah, November 2010, co-chaired with Salvador Garcia-Munoz.
34. "Computational Aspects of Linear Optimization," *Computational Management Science 2010*, Vienna, Austria, July 2010.
35. "Computational Linear Programming," *INFORMS Annual Meeting*, San Diego, California, October 2010.
36. "Surrogate and derivative free optimization I," *INFORMS Annual Meeting*, Charlotte, North Carolina, November 13-16, 2011.
37. "Optimization with surrogates," *INFORMS Annual Meeting*, Phoenix Arizona, October 2012.
38. "Surrogate and Derivative-Free Optimization: Algorithms and Applications," 9th International Conference on Computational Management Science (CMS 2012), Imperial College, London, U.K., 19-20 April 2012.
39. "Computing Systems and Technology (CAST) Division Plenary," *AIChE Annual Meeting*, Pittsburgh, Pennsylvania, October 2012.
40. "Computing Systems and Technology (CAST) Division Plenary," *AIChE Annual Meeting*, Minneapolis, Minnesota, October 2013.
41. "Computing Systems and Technology (CAST) Division Plenary," *AIChE Annual Meeting*, Atlanta, Georgia, November 2014.
42. "Big Data Plenary I," *AIChE 2015 Spring Meeting and 11th Global Congress on Process Safety*, Austin, Texas, April 2015.
43. "Big Data Plenary II," *AIChE 2015 Spring Meeting and 11th Global Congress on Process Safety*, Austin, Texas, April 2015.
44. "Computing Systems and Technology (CAST) Division Plenary," *AIChE Annual Meeting*, Salt Lake City, Utah, November 2015.
45. "Computing Systems and Technology (CAST) Division Plenary," *AIChE Annual Meeting*, San Francisco, California, November 2016.
46. "Computationally Efficient Derivative-Free Local and Global Optimization," *SIAM Conference on Computational Science and Engineering (CSE19)*, Spokane, Washington, February 2019.

47. "In honor of Professor Ignacio Grossmann's birthday—I," *AIChE Annual Meeting,* Orlando, Florida, November 2019.
48. "In honor of Professor Ignacio Grossmann's birthday—II," *AIChE Annual Meeting,* Orlando, Florida, November 2019.
49. "Black-box Optimization: Algorithms and Applications," *INFORMS Annual Meeting,* Indianapolis, Indiana, October 2022.
50. "In Honor of Professor Ignacio Grossmann's 75th Birthday—I", *AIChE Annual Meeting,* San Diego, California, October 2024.
51. "In Honor of Professor Ignacio Grossmann's 75th Birthday—II", *AIChE Annual Meeting,* San Diego, California, October 2024.

Invited sessions chaired

1. "Global optimization," *ORSA/TIMS Annual Meeting*, Boston, Massachusetts, April 1994.
2. "Computer-aided strategic decision making in the supply chain," *AIChE Annual Meeting*, Los Angeles, California, November 1997.
3. "Integer programming", *INFORMS Annual Meeting,* Dallas, Texas, October 1997.
4. "Numerical methods for global optimization," *International Symposium of Mathematical Programming*, Lausanne, Switzerland, August 1997.
5. "Advances in optimization-1," *AIChE Annual Meeting*, Miami Beach, Florida, November 1998.
6. "Advances in optimization-2," *AIChE Annual Meeting*, Miami Beach, Florida, November 1998.
7. "Posters—Issues in computers in operations and information processing," *AIChE Annual Meeting,* Dallas, Texas, October 1999.
8. "Planning and scheduling," II Pan American Workshop on Catalysis and Process Systems Engineering, September 1999, Santa Fe, Argentina.
9. *International Conference on Advances in Convex Analysis and Global Optimization Honoring the Memory of C. Carathéodory*, Samos, Greece, June 2000.
10. "Advances in optimization—1," *AIChE Annual Meeting*, Reno, Nevada, November 2001.
11. "Advances in optimization—2," *AIChE Annual Meeting*, Reno, Nevada, November 2001.
12. "Global optimization—I," *18th International Symposium on Mathematical Programming*, Copenhagen, Denmark, August 2003.
13. Semi-plenary, "A. Neumaier: Complete Search for Constrained Global Optimization," *International Conference on Continuous Optimization (ICCOPT—I)*, Troy, New York, August 2004.
14. "Optimization in Industry," NSF Symposium on Supply Chain Management in Process Industries, University of Minnesota, Minneapolis, May 2004.
15. "Polynomial programming," MINLP Workshop, Paris, France, September 2013.
16. Final technical session of *2nd Derivative-Free Optimization Symposium,* Padova, Italy, June 2024.

Other sessions chaired

1. "Global Optimization," *International Conference on Continuous Optimization (ICCOPT—I)*, Troy, NY, August 2004.
2. "Applications in dynamic programming," *International Symposium on Mathematical Programming*, Rio de Janeiro, Brazil, August 2006.
3. "CAST rapid fire session I," *AIChE Annual Meeting,* San Francisco, California, November 2016.
4. "CAST rapid fire session II," *AIChE Annual Meeting,* San Francisco, California, November 2016.

5. "CAST rapid fire session III," *AIChE Annual Meeting,* San Francisco, California, November 2016.

A4. Technical Journal or Conference Referee Activities

Referee for journals (number of papers refereed are shown in parentheses):

- *ACM Transactions on Mathematical Software* (1)
- *Advances in Water Resources* (1)
- *AIChE Journal* (45)
- *Annals of Mathematics and Artificial Intelligence* (1)
- *Annals of Operations Research* (3)
- *Applied Mathematics and Computation* (1)
- *Asia Pacific Journal of Operations Research* (1)
- *ASME Journal of Energy Resources Technology* (1)
- *ASME Transactions, Journal of Engineering for Industry* (2)
- *Automatica* (2)
- *Bioinformatics* (5)
- *Biotechnology and Bioengineering* (1)
- *Biotechnology Progress* (3)
- *Chemical Engineering Communications* (4)
- *Chemical Engineering Research and Design* (3)
- *Chemical Engineering Science* (5)
- *Computational Optimization and Applications* (6)
- *Computers & Chemical Engineering* (60)
- *Computers & Operations Research* (7)
- *Current Opinion in Chemical Engineering* (1)
- *Discrete Dynamics in Nature and Society* (1)
- *Engineering Optimization* (4)
- *Environmental Modeling & Assessment* (3)
- *European Journal of Operational Research* (12)
- *IEEE/ACM Transactions on Computational Biology and Bioinformatics* (1)
- *IIE Transactions* (1)
- *IIE Transactions on Operations Engineering* (1)
- *IMA Journal of Numerical Analysis* (1)
- *INFORMS Journal on Computing* (4)
- *Industrial & Engineering Chemistry Research* (55)
- *International Journal of Operations and Quantitative Management* (4)
- *Journal of Computational and Applied Mathematics* (1)
- *Journal of Global Optimization* (29)
- *Journal of Heuristics* (1)
- *Journal of Machine Learning Research* (1)
- *Journal of Integrative Bioinformatics* (1)
- *Journal of Molecular Catalysis B: Enzymatic* (1)
- *Journal of Natural Gas Science and Engineering* (1)
- *Journal of Optimization Theory and its Applications* (5)
- *Journal of Physical Chemistry* (2)
- *Journal of Systems and Software* (1)
- *Journal of Systems Science and Systems Engineering* (1)

- *Langmuir* (1)
- *Management Science* (4)
- *Mathematical and Computer Modelling* (1)
- *Manufacturing & Service Operations Management* (1)
- *Mathematical Biosciences* (1)
- *Mathematical Programming* (14)
- *Mathematical Programming Computation* (1)
- *Metabolic Engineering* (2)
- *Naval Research Logistics* (3)
- *Omega* (1)
- *Operations Research* (5)
- *Operations Research Letters* (1)
- *Optimization and Engineering* (13)
- *Optimization Letters* (3)
- *Optimization Methods and Software* (1)
- *Pacific Journal of Optimization* (1)
- *PLoS ONE* (1)
- *SIAM Journal on Optimization* (9)
- *SIAM Journal on Scientific Computing* (1)
- *SIAM Review* (1)
- *Simulation Modelling Practice and Theory* (1)
- *Springer PLUS* (1)
- *Structural and Multidisciplinary Optimization* (1)
- *Water Resources Research* (1)

Reviewer for chapters in books/proceedings papers:

- *ASME Design Theory and Methodology Conference* (1)
- BIRD'08: 2nd International Conference on Bioinformatics Research and Development (2)
- *Constraint Programming '06* (1)
- *Essays and Surveys in Global Optimization,* C. Audet, P. Hansen and G. Savard (eds.) (1)
- *Essays and Surveys in Metaheuristics,* Ribeiro and Hansen (eds.) (1)
- *Foundations of Computer Aided Process Operations (FOCAPO'93)* (2)
- *Foundations of Computer Aided Process Operations (FOCAPO'98)* (6)
- *Foundations of Computer Aided Process Operations (FOCAPO'08)* (6)
- *Global Optimization and Constraint Satisfaction (Cocos'03),* C. Jermann and D. Samharoud (eds.) (1)
- *Global Optimization in Engineering Design*, Grossmann (ed.) (3)
- *Handbook of Global Optimization—Volume 2*, Pardalos and Romejin (eds.) (1)
- *IMA Hot Topic Workshop on MINLP*, Lee and Leyffer (eds.) (1)
- *Innovation and Technology in Computer Science Education (ITiCSE'06)* (1)
- *Network Optimization Problems: Algorithms, Complexity and Applications*, Du and Pardalos (eds.) (1)
- *Research in Computational Biology 2008 (RECOMB'08)* (1)
- *State of the Art in Global Optimization: Computational Methods and Applications*, Floudas and Pardalos (eds.) (2)
- *Technical Symposium on Computer Science Education (SIGCSE'07)* (2)
- *Technical Symposium on Computer Science Education (SIGCSE'08)* (2)

A5. Proposal Panels and Reviews

- Proposal reviewer for American Chemical Society's *Petroleum Research Fund* (5)
- Proposal reviewer for the US Civilian Research & Development Foundation (1)
- Proposal reviewer for Department of Defense (1)
- Proposal reviewer for Austrian Science Fund (4)
- Proposal reviewer for National Science Foundation (20)
- Review panelist for National Science Foundation (13 panels, each with 10 to 60 proposals)
- Review panelist for Department of Energy (1 panel, 6 proposals)
- Reviewer for new journal proposals for Kluwer Academic Publishers (3)
- Reviewer for new book proposals:
  - CRC Press (1)
  - John Wiley & Sons (1)
  - Oxford University Press (1)
  - Prentice Hall (1)
  - PWS Publishing Company (1)
  - Taylor & Francis Engineering (1)
  - The Chinese University Press (1)
  - The McGraw-Hill Companies (2)
- Reviewer panelist for National Institutes of Health:
  - Bioinformatics Study Section, 2002

B. Public and Community Service

- Governing Council, University of Macedonia, Thessaloniki, Greece, 1/2013–2/2016
- External evaluator of promotion and tenure packages
  - Miscellaneous universities around the world (46)

C. Institute Contributions

C1. Institute Committee Service

At Carnegie Mellon University

- Wilton E. Scott Institute for Energy Innovation, Faculty Advisory Council, 2017–2020

At the University of Illinois at Urbana-Champaign

- Honorary degrees committee, 2002–2004
- Reviewer for University Research Board proposals (6)
- Senate, 2002–2005

C2. College Committee Service

At Carnegie Mellon University

- Awards Committee, 2009
- Meeting of the minds—CIT honors poster competition judge, 2009
- Ad hoc committee on promotion and tenure, 2010-2011, 2012-2013
- Search committee for head selection of Chemical Engineering Department (2013)

At the University of Illinois at Urbana-Champaign

- College of Liberal Arts and Sciences
  - Committee on Departmental Advising, 2006
  - General education committee, 2002–2004
  - Honors Council, 2004–2006
  - School of Chemical Sciences director search committee, 1999
- College of Engineering
  - Awards Committee, 2005-2006
  - Bioinformatics M.S. Evaluation Committee, 2003
  - Course Evaluation Committees
    - CS 292, 293, 299, 391, 232, 333, 491, and 499, 1994
    - CS 424, 1995
    - ECE 488, 1997
    - CEE 336 and 445, 2001
    - CS 410, 412, 511, and 512, 2004
  - Engineering-Biology/Chemistry Liaison Subcommittee, 2004–2005
  - Engineering-Computer Science Liaison Subcommittee, 2005–2007
  - Mechanical and Industrial Engineering Department head search committee, 2004–2005

C3. School Committee Service

At Georgia Tech

- Chemical & Biomolecular Engineering
  - Faculty awards committee, 2021–
- Industrial & Systems Engineering
  - PPR committee, 2021–2022
  - Faculty search committee, 2021–2024
  - Faculty awards committee, 2023–

At Carnegie Mellon University

- Computer committee, 2008–2016
- Departmental seminars organizer, S09, F09, S10
- Design minor, 2008–2020
- Master's program committee, 2013–2020
- Faculty recruiting, 2008–2015
  - Chair, 2009–2015
- Process Systems Engineering seminar, F08, F10, F12
- Promotions and tenure committee, 2008–2020
- Qualifying examination, 2007
  - Chair, 2012
- Undergraduate Advising, 2007–2020

At the University of Illinois at Urbana-Champaign

- Department of Bioengineering
  - Graduate Committee, 2004–2007
- Department of Chemical and Biomolecular Engineering
  - Administrative committee, January 1998–1999, 2000–2007
  - Awards committee, 1998, 2001–2002, 2003–2006
  - Chief undergraduate advisor, 1998–1999, 2000–2007

    - Director of Bioinformatics Program, 2004–2007
    - Drickamer fellowship committee, 2004, 2005
    - Faculty hiring committee, Chair of computational area subcommittee, 2001–2005
    - Promotions and tenure committee, 1998–2007
    - Qualifying examination, 1998–2007
    - Resource development committee, 2004
    - Shen postdoctoral fellowship committee, 2003
    - Systems Bioinformatics, committee chair, 2001
    - TA assignments coordinator, 2000–2007
    - Undergraduate awards, 2006
    - Undergraduate curriculum committee (including ABET matters), 2006
- Department of Mathematics
    - Committee on Mathematics and its applications, 2000–2001
- Department of Mechanical and Industrial Engineering
    - Graduate admissions committee, 1996–1997
    - Graduate program committee, 1996–97
    - Qualifying examination, 1992–1997
    - Seminar committee, 1991–95
- School of Chemical Sciences
    - Ad hoc Committee on Scientific Software, 2003
    - Chemical and Biomolecular Engineering Department head search committee, 2002–2003
    - Noyes Lab space utilization committee, 2000–2001

C4. Program Development: Research

As Director of the Center for Advanced Process-decision Making, I initiated the Center's first research program in continuous pharmaceutical manufacturing through a multi-million contract from Eli Lilly and Company.

C5. Program Development: Academic

Primary developer of the Bioinformatics M.S. program at the University of Illinois at Urbana-Champaign, the first program owned directly by the Board of Trustees with program options offered in five colleges.

C6. Other Institute Service Contributions

At the University of Illinois at Urbana-Champaign

- Bioengineering Program
    - Course and curricula committee, 1995–1999
    - Elections committee, 1999, 2001
- Computational Science and Engineering Program
    - Steering committee, 1998–1999, 2001–2008
    - Fellowship Proposals Evaluation Panel, 2003
- Graduate College
    - Bioinformatics steering committee
        - Member, 2002–2008

- Chair, Jan. 2005–2008