Willem-Jan van Hoeve
Senior Associate Dean of Education
Carnegie Bosch Professor of Operations Research
Tepper School of Business
Carnegie Mellon University

April, 2021

Curriculum Vitae

Positions Held

2020– Senior Associate Dean of Education, Tepper School of Business, Carnegie Mellon University

2019– Carnegie Bosch Professor of Operations Research, Tepper School of Business, Carnegie Mellon University

2017–20 Head, Master of Science in Business Analytics Program, Tepper School of Business, Carnegie Mellon University

2016–19 Carnegie Bosch Associate Professor of Operations Research, Tepper School of Business, Carnegie Mellon University

2013–16 Associate Professor of Operations Research, Tepper School of Business, Carnegie Mellon University

2013 Assistant Professor of Operations Research, Carnegie Mellon University in Qatar

2007–13 Assistant Professor of Operations Research, Tepper School of Business, Carnegie Mellon University

2005–07 Postdoctoral Associate, Department of Computer Science, Cornell University

Education

2005 Ph.D., Computer Science, Faculty of Science, University of Amsterdam, and Centrum voor Wiskunde en Informatica (CWI), The Netherlands

2000 M.Sc., Mathematical Programming, Department of Applied Mathematics, University of Twente, The Netherlands

Research and teaching interests

Methodologies: operations research, optimization, constraint programming, integer programming, machine learning, decision diagrams

Applications: network design, scheduling, vehicle routing, health care operations, analytical marketing

Consulting Projects

412 Food Rescue, AIMMS, Angel Flight, Bosch/Siemens, BP, Charter Steel, Crossett Inc., ExxonMobil, Family Hospice, FedEx Ground, Greater Pittsburgh Community Food Bank, Kalibrate, Labatt Food Service, PNC Bank, PolyChem, and others.

Awards, Prizes, Honors

INFORMS Computing Society Harvey J. Greenberg Research Award for *"Outer Approximation for Integer Nonlinear Programs via Decision Diagrams"* (2020)

MSBA Teaching Excellence Award (Tepper School of Business) (2020)

Best EJOR Application Paper, conferred by the Association of European Operational Research Societies, for *"Inventory Rebalancing and Vehicle Routing in Bike Sharing Systems"* (2019)

George Leland Bach MBA Teaching Award (Tepper School of Business) (2011, 2017)

Carnegie Bosch Institute Faculty Research Chair (2016–)

Faculty Giving Chair (Academic Year 2011–2012)

BP Junior Faculty Chair (Academic Year 2008–2009)

Best paper award at the International Conference on Principles and Practice of Constraint Programming (CP) for *"Revisiting The Sequence Constraint"* (2006)

Best student paper award at the International Conference on Principles and Practice of Constraint Programming (CP) for *"A Hyper-Arc Consistency Algorithm for the Soft Alldifferent Constraint"* (2004)

Editorial Roles

Scientific/Professional Journals

Associate Editor, *INFORMS Journal on Computing* (2019–)

Editor, *Artificial Intelligence (AIJ)* (2021–2024)

Editor, *Constraints* (2010–2016)

Editor, *Constraint Programming Letters* (2006–2008)

Guest Editor, *Constraints*, special issue on the Journal Fast Track for the conference CPAIOR (2018)

Guest Editor, *EURO Journal on Computational Optimization*, special issue on *Constraint Programming Approaches to Combinatorial Optimization* (2013–2014) and (2017–2018)

Guest Editor, *Constraints*, special issue on the Journal Fast Track for the conference CP (2016)

Ad Hoc Referee for numerous academic journals related to operations research, artificial intelligence, and computer science.

Conference or program committee chair

Track Chair, International Conference on Principles and Practice of Constraint Programming (CP) (2021)

Area Chair, 33rd AAAI Conference on Artificial Intelligence (AAAI) (2019)

Chair, International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR) (2009, 2018)

Co-chair, Symposium on Decision Diagrams for Optimization (2018)

Co-chair, Dagstuhl Seminar on *Planning and Operations Research* (2018)

Chair, Journal Publication Fast Track of the International Conference on Principles and Practice of Constraint Programming (CP) (2016)

Chair, Constraint Programming Cluster of the International Symposium on Mathematical Programming (ISMP) (2012, 2015)

Chair, Tutorial and workshop program of the International Conference on Principles and Practice of Constraint Programming (CP) (2015)

Chair, Cluster *Computing Society/Constraint Programming and Integrated Methods* of the INFORMS Annual Meeting (2011)

Chair, Student Abstract and Poster Program for the National Conference on Artificial Intelligence (AAAI) (2008)

Courses Taught (at Carnegie Mellon)

Optimization (MBA core) (2008, 2009, 2014–2021)

Optimization for Prescriptive Analytics (MSBA core) (2019–2021)

Operations Research Implementations (MBA elective) (2010–2014, 2016–2020)

Capstone Project (MSBA) (2019, 2020)

Business Analytics Project (MBA capstone) (2011, 2012, 2014, 2015, 2018, 2019)

Networks and Matchings (PhD) (2014)

Constraint Programming (PhD) (2010, 2013, 2016)

Mathematical Models for Consulting (undergraduate) (2008, CMUQ 2013)

Models and Methods for Optimization (undergraduate) (CMUQ 2013)

Applications of Operations Research (MBA elective) (2011, 2012)

Optimization Models for Operations (MBA elective) (2008–2011)

Optimization Models for Logistics (MBA elective) (2008)

Optimization, Logic & Constraint Satisfaction (PhD) (2007)

Research Grants and Contracts

Awarded to date

Office of Naval Research (2021–2024)
Decision Diagrams for Combinatorial Optimization: Algorithms and Applications
Role: Principal Investigator

National Science Foundation (2019–2023)
Embedding Constraint Reasoning in Machine Learning for Better Prediction and Decision-making
Role: Co-Principal Investigator (with Y. Xue and J. Wachs, Purdue University)

Highmark Health (2019–2020)
A Generalizable Framework for Provider Network Optimization
Role: Principal Investigator

Office of Naval Research (2018–2021)
Combinatorial Optimization: Algorithms and Applications
Role: Co-Principal Investigator (with E. Balas and G. Cornuéjols, Tepper School of Business)

Google Research Award (2016)
Harnessing Intricate Substructures for Maximum Satisfiability
Role: Principal Investigator

PNC Center for Financial Services Innovation (2014–2016)
An Analytical Approach to Evaluating Bank Branches
Role: Co-Principal Investigator (with A. Montgomery, Tepper School of Business)

Google Research Award (2012)
Improved MDD-Based Optimization for Bin Packing Problems
Role: Principal Investigator

National Science Foundation (2011–2014)
Multivalued Decision Diagrams in Optimization
Role: Co-Principal Investigator (with J. N. Hooker, Tepper School of Business)

Berkman Faculty Development Grant (2010)
Optimization for Food Rescue Programs
Role: Principal Investigator

Center for Business Solutions and Microsoft (2008–2009)
Computing and Visualizing Decision Impact in MS Dynamics
Role: Co-Investigator (with S. F. Smith, Robotics Institute, CMU)

Carnegie-Bosch Institute and Bosch/Siemens Home Appliances (2008–2009)
Sourcing Strategy Development for Bosch/Siemens Home Appliances
Role: Co-Investigator (with L. Debo, S. Kekre, and S. Kekre, Tepper School of Business)

Articles in refereed journals (i.e., critical peer review before publication)

1. W.-J. van Hoeve. Graph Coloring with Decision Diagrams. *Mathematical Programming*, to appear.
2. C. Tjandraatmadja and W.-J. van Hoeve. Incorporating Bounds from Decision Diagrams into Integer Programming. *Mathematical Programming Computation*, to appear.
3. D. Davarnia and W.-J. van Hoeve. Outer Approximation for Integer Nonlinear Programs via Decision Diagrams. *Mathematical Programming*, to appear.
4. A. Hosseininasab and W.-J. van Hoeve. Exact Multiple Sequence Alignment by Synchronized Decision Diagrams. *INFORMS Journal on Computing*, to appear.
5. J. Kinable, W.-J. Van Hoeve, and S. F. Smith. Snow Plow Route Optimization: A Constraint Programming Approach. *IISE Transactions*, 53(6):685-703, 2021.
6. C. Tjandraatmadja and W.-J. van Hoeve. Target Cuts from Relaxed Decision Diagrams. *INFORMS Journal on Computing* 31(2): 285–301, 2019.
7. J. N. Hooker and W.-J. van Hoeve. Constraint Programming and Operations Research. *Constraints* 23(2):172–195, 2018.
8. J. Kinable, A. A. Cire, and W.-J. van Hoeve. Hybrid Optimization Methods for Time-Dependent Sequencing Problems. *European Journal of Operational Research* 259(3):887–897, 2017.
9. J. Schuijbroek, R. Hampshire, and W.-J. van Hoeve. Inventory Rebalancing and Vehicle Routing in Bike Sharing Systems. *European Journal of Operational Research* 257(3):992–1004, 2017.
10. D. Bergman, A. A. Cire, W.-J. van Hoeve, and J. N. Hooker. Discrete Optimization with Decision Diagrams. *INFORMS Journal on Computing*, 28(1):47–66, 2016.
11. D. Bergman, A. A. Cire, and W.-J. van Hoeve. Lagrangian Bounds from Decision Diagrams. *Constraints*, 20(3): 346–361, 2015.
12. V. Goel, M. Slusky, W.-J. van Hoeve, K. Furman, and Y. Shao. Constraint Programming for LNG Ship Scheduling and Inventory Management. *European Journal of Operational Research*, 241(3): 662–673, 2015.
13. D. Bergman, A. A. Cire, W.-J. van Hoeve, and J. N. Hooker. Optimization Bounds from Binary Decision Diagrams. *INFORMS Journal on Computing* 26(2): 253–258, 2014.
14. D. Bergman, A. A. Cire, and W.-J. van Hoeve. MDD Propagation for Sequence Constraints. *Journal of Artificial Intelligence Research*, Volume 50, pages 697–722, 2014.
15. D. Bergman, A. A. Cire, W.-J. van Hoeve, and T. Yunes. BDD-Based Heuristics for Binary Optimization. *Journal of Heuristics* 20(2): 211–234, 2014.
16. A. A. Cire and W.-J. van Hoeve. Multivalued Decision Diagrams for Sequencing Problems. *Operations Research* 61(6): 1411-1428, 2013.
17. P. Benchimol, W.-J. van Hoeve, J.-C. Régin, L.-M. Rousseau, and M. Rueher. Improved Filtering for Weighted Circuit Constraints. *Constraints* 17(3): 205–233, 2012.
18. J. Conrad, C. P. Gomes, W.-J. van Hoeve, A. Sabharwal, and J. F. Suter. Wildlife corridors as a connected subgraph problem. *Journal of Environmental Economics and Management* 63(1): 1–18, 2012.

19. W.-J. van Hoeve, G. Pesant, L.-M. Rousseau, and A. Sabharwal. New Filtering Algorithms for Combinations of Among Constraints. *Constraints* 14(2): 273–292, 2009.
20. W.-J. van Hoeve, G. Pesant, and L.-M. Rousseau. On Global Warming: Flow-Based Soft Global Constraints. *Journal of Heuristics* 12(4–5): 347–373, 2006.
21. W.-J. van Hoeve. Exploiting Semidefinite Relaxations in Constraint Programming. *Computers & Operations Research* 33(10): 2787–2804, 2006.

Articles in refereed conference proceedings

22. A. Karahalios, W.-J. van Hoeve. Variable Ordering for Decision Diagrams: A Portfolio Approach. In *Proceedings of CPAIOR*,[1] 2021. (This paper was invited to the *Constraints* journal fast track for publication instead of the regular conference proceedings.)
23. R. Gentzel, L. Michel and W.-J. van Hoeve. Haddock: A Language and Architecture for Decision Diagram Compilation. In *Proceedings of CP*,[2] volume 12333 of *LNCS*,[3] pp. 531–547. Springer, 2020.
24. W.-J. van Hoeve. Graph Coloring Lower Bounds from Decision Diagrams. In *Proceedings of the 21st Conference on Integer Programming and Combinatorial Optimization (IPCO)*, volume 12125 of *LNCS*, pp. 405–419. Springer, 2020.
25. J. K. Mogali, W.-J. van Hoeve and S. F. Smith. Template Matching and Decision Diagrams for Multi-Agent Path Finding. In *Proceedings of CPAIOR*, volume 12296 of *LNCS*, pp. 547–363. Springer, 2020.
26. F. Grenouilleau, W.-J. van Hoeve and J. N. Hooker. A Multi-Label A* Algorithm for Multi-Agent Pathfinding. In *Proceedings of ICAPS*,[4] pp. 181–185. AAAI Press, 2019.
27. Y. Xue and W.-J. van Hoeve. Embedding Decision Diagrams into Generative Adversarial Networks. In *Proceedings of CPAIOR*, volume 11494 of *LNCS*, pp. 616–632. Springer, 2019.
28. Z. Tang, W.-J. van Hoeve, and P. Shaw. A Study on the Traveling Salesman Problem with a Drone. In *Proceedings of CPAIOR*, volume 11494 of *LNCS*, pp. 557–564. Springer, 2019.
29. B. Kocuk and W.-J. van Hoeve. A Computational Comparison of Optimization Methods for the Golomb Ruler Problem. In *Proceedings of CPAIOR*, volume 11494 of *LNCS*, pp. 409–425. Springer, 2019.
30. A. Hosseininasab, W.-J. van Hoeve, and A. A. Cire. Constraint-based Sequential Pattern Mining with Decision Diagrams. In *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI)*, pp. 1495–1502. AAAI Press, 2019.
31. W.-J. van Hoeve and S. Tayur. Integer and Constraint Programming for Batch Annealing Process Planning. In *Proceedings of CP*, volume 10416 of LNCS, pp. 431–439. Springer, 2017.
32. K. A. Giles and W.-J. van Hoeve. Solving a Supply-Delivery Scheduling Problem with Constraint Programming. In *Proceedings of CP*, volume 9892 of *LNCS*, pp. 602–617. Springer, 2016.
33. J. Kinable, W.-J. van Hoeve, and S. F. Smith. Optimization Models for a Real-World Snow Plow Routing Problem. In *Proceedings of CPAIOR*, volume 9676 of *LNCS*, pp. 229–245. Springer, 2016.

[1] *CPAIOR:* International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research.
[2] *CP:* The International Conference on Principles and Practice of Constraint Programming.
[3] *LNCS:* Lecture Notes in Computer Science.
[4] *ICAPS:* The International Conference on Automated Planning and Scheduling.

34. D. Bergman, A. A. Cire, and W.-J. van Hoeve. Improved Constraint Propagation via Lagrangian Decomposition. In *Proceedings of CP*, volume 9255 of *LNCS*, pp. 30–38. Springer, 2015.

35. B. Kell, A. Sabharwal, and W.-J. van Hoeve. BDD-Guided Clause Generation. In *Proceedings of CPAIOR*, volume 9075 of *LNCS*, pp. 215–230. Springer, 2015.

36. D. Bergman, A. A. Cire, A. Sabharwal, H. Samulowitz, V. Saraswat, and W.-J. van Hoeve. Parallel Combinatorial Optimization with Decision Diagrams. In *Proceedings of CPAIOR*, volume 8451 of *LNCS*, pp. 351–367. Springer, 2014.

37. B. Kell and W.-J. van Hoeve. An MDD Approach to Multidimensional Bin Packing. In *Proceedings of CPAIOR*, volume 7874 of *LNCS*, pp. 128–143. Springer, 2013.

38. M. R. Slusky and W.-J. van Hoeve. A Lagrangian Relaxation for Golomb Rulers. In *Proceedings of CPAIOR*, volume 7874 of *LNCS*, pp. 251–267. Springer, 2013.

39. A. A. Cire and W.-J. van Hoeve. MDD Propagation for Disjunctive Scheduling. In *Proceedings of the International Conference on Automated Planning and Scheduling (ICAPS)*, pp. 11–19. AAAI Press, 2012.

40. A. A. Cire, E. Coban, and W.-J. van Hoeve. Flow-Based Combinatorial Chance Constraints. In *Proceedings of CPAIOR*, volume 7298 of *LNCS*, pp. 129–145. Springer, 2012.

41. D. Bergman, A. A. Cire, W.-J. van Hoeve, and J. N. Hooker. Variable Ordering for the Application of BDDs to the Maximum Independent Set Problem. In *Proceedings of CPAIOR*, volume 7298 of *LNCS*, pp. 34–49. Springer, 2012.

42. R. Steiger, W.-J. van Hoeve, and R. Szymanek. An Efficient Generic Network Flow Constraint. In *Proceedings of the ACM Symposium on Applied Computing (SAC)*, pp. 893–900. ACM, 2011.

43. D. Bergman, W.-J. van Hoeve, and J. N. Hooker. Manipulating MDD Relaxations for Combinatorial Optimization. In *Proceedings of CPAIOR*, volume 6697 of *LNCS*, pp. 20–35. Springer, 2011.

44. S. Hoda, W.-J. van Hoeve, and J. N. Hooker. A Systematic Approach to MDD-Based Constraint Programming. In *Proceedings of CP*, volume 6308 of *LNCS*, pp. 266–280. Springer, 2010.

45. P. Benchimol, J.-C. Régin, L.-M. Rousseau, M. Rueher, and W.-J. van Hoeve. Improving the Held and Karp Approach with Constraint Programming. In *Proceedings of CPAIOR*, volume 6140 of *LNCS*, pp. 40–44. Springer, 2010.

46. J.-C. Régin, L.-M. Rousseau, M. Rueher, and W.-J. van Hoeve. The Weighted Spanning Tree Constraint Revisited. In *Proceedings of CPAIOR*, volume 6140 of *LNCS*, pp. 176–180. Springer, 2010.

47. C. Gunes, W.-J. van Hoeve, and S. Tayur. Vehicle Routing for Food Rescue Programs: A Comparison of Different Approaches. In *Proceedings of CPAIOR*, volume 6140 of *LNCS*, pp. 287–291. Springer, 2010.

48. Y. Malitsky, M. Sellmann, and W.-J. van Hoeve. Length-Lex Bounds Consistency for Knapsack Constraints. In *Proceedings of CP*, volume 5202 of *LNCS*, pp. 266–281. Springer, 2008.

49. C. P. Gomes, W.-J. van Hoeve, and A. Sabharwal. Connections in Networks: A Hybrid Approach. In *Proceedings of CPAIOR*, volume 5015 of *Lecture Notes in Computer Science*, pp. 303–307. Springer, 2008.

50. W.-J. van Hoeve and A. Sabharwal. Filtering Atmost1 on Pairs of Set Variables. In *Proceedings of CPAIOR*, volume 5015 of *Lecture Notes in Computer Science*, pp. 382–386. Springer, 2008.

51. C. P. Gomes, W.-J. van Hoeve, A. Sabharwal, and B. Selman. Counting CSP Solutions Using Generalized XOR Constraints. In *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI)*, pp. 204–209. AAAI Press, 2007.
52. W.-J. van Hoeve, C. P. Gomes, M. Lombardi, and B. Selman. Optimal Multi-Agent Scheduling with Constraint Programming. In *Proceedings of the AAAI Conference on Innovative Applications of Artificial Intelligence (IAAI)*, pp. 1813–1818. AAAI Press, 2007.
53. J. Conrad, C. P. Gomes, W.-J. van Hoeve, A. Sabharwal, and J. Suter. Connections in Networks: Hardness of Feasibility versus Optimality. In *Proceedings of CPAIOR*, volume 4510 of *LNCS*, pp. 16–28. Springer, 2007.
54. W.-J. van Hoeve, G. Pesant, L.-M. Rousseau, and A. Sabharwal. Revisiting the Sequence Constraint. In *Proceedings of CP*, volume 4204 of *LNCS*, pp. 620–634. Springer, 2006.
55. W.-J. van Hoeve and J.-C. Régin. Open Constraints in a Closed World. In *Proceedings of CPAIOR*, volume 3990 of *LNCS*, pp. 244–257. Springer, 2006.
56. C. P. Gomes, W.-J. van Hoeve, and L. Leahu. The Power of Semidefinite Programming Relaxations for MAX-SAT. In *Proceedings of CPAIOR*, volume 3990 of *LNCS*, pp. 104–118. Springer, 2006.
57. W.-J. van Hoeve. A Hyper-Arc Consistency Algorithm for the Soft Alldifferent Constraint. In *Proceedings of CP*, volume 3258 of *LNCS*, pp. 679–689. Springer, 2004.
58. W.-J. van Hoeve and M. Milano. Postponing Branching Decisions. In *Proceedings of the European Conference on Artificial Intelligence (ECAI)*, pp. 1105–1106. IOS Press, 2004.
59. W.-J. van Hoeve. A Hybrid Constraint Programming and Semidefinite Programming Approach for the Stable Set Problem. In *Proceedings of CP*, volume 2833 of *LNCS*, pp. 407–421. Springer, 2003.
60. M. Milano and W.-J. van Hoeve. Reduced Cost-Based Ranking for Generating Promising Subproblems. In *Proceedings of CP*, volume 2470 of *LNCS*, pp. 1–16. Springer, 2002.

Articles in edited books/volumes

61. N. Lahrichi, L.-M. Rousseau, and W.-J. van Hoeve. Residential Care (invited chapter). In T. Dai and S. Tayur (eds.), *Handbook of Health Care Analytics*, pp. 257–285. Wiley, 2018.
62. W.-J. van Hoeve. Semidefinite Programming and Constraint Programming (invited chapter). In M. F. Anjos and J. B. Lasserre (eds.), *Handbook of Semidefinite, Cone and Polynomial Optimization: Theory, Algorithms, Software and Applications*, pp. 635–668. Springer, 2012.
63. W.-J. van Hoeve. Over-Constrained Problems (invited chapter). In P. Van Hentenryck and M. Milano (eds.), *Hybrid Optimization: the 10 years of CPAIOR*, pp. 191–225. Springer, 2011.
64. W.-J. van Hoeve and I. Katriel. Global Constraints (invited chapter). In F. Rossi, P. van Beek, and T. Walsh (eds.), *Handbook of Constraint Programming*, pp. 169–208. Elsevier, 2006.

Books/volumes

65. W.-J. van Hoeve (ed.). Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 15th International Conference, CPAIOR 2018, Delft, The Netherlands, June 26-29, 2018, Proceedings. *Lecture Notes in Computer Science* 10848, Springer 2018. (616 pages)

66. D. Bergman, A. A. Cire, W.-J. van Hoeve, and J. N. Hooker. Decision Diagrams for Optimization. Springer, 2016. (254 pages)
67. W.-J. van Hoeve and J. N. Hooker (eds.). Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems, 6th International Conference, CPAIOR 2009, Pittsburgh, PA, USA, May 27-31, 2009, Proceedings. *Lecture Notes in Computer Science* 5547, Springer 2009, (332 pages)
68. W.-J. van Hoeve. Operations Research Techniques in Constraint Programming. *ILLC Dissertation Series* DS 2005-02. ILLC, 2005. ISBN 9061965292. (154 pages)

Articles in refereed but non-archived proceedings

69. W.-J. van Hoeve, M. Hunting, and C. Kuip. The Aimms Interface to Constraint Programming. In *Proceedings of Late Breaking Abstracts of CPAIOR*, ZIB Report 11-20, pp. 41–43, 2011.
70. W.-J. van Hoeve and A. Sabharwal. Two Set-Constraints for Modeling and Efficiency. In *Proceedings of the 6th International Workshop on Constraint Modelling and Reformulation (ModRef)*, 2007.
71. C. P. Gomes, W.-J. van Hoeve, and B. Selman. Constraint Programming for Distributed Planning and Scheduling. In *Proceedings of the AAAI 2006 Spring Symposium on Distributed Plan and Schedule Management*, AAAI Press, 2006.
72. W.-J. van Hoeve, G. Pesant, and L.-M. Rousseau. On Global Warming (Softening Global Constraints). In *Proceedings of the International Workshop on Preferences and Soft Constraints*, 2004.
73. W.-J. van Hoeve. The Alldifferent Constraint: A Survey. In *Proceedings of the Annual Workshop of the ERCIM Working Group on Constraints*, 2001.

Student Supervision

Doctoral Student Supervision – Thesis Committee Chair

Ziye Tang (Chair, Thesis Committee) (Tepper School of Business, CMU)
(Thesis Proposal: Theoretical and Computational Methods for Network Design and Routing) (2021, expected)
Best Paper Award, ACM-SIAM Symposium on Discrete Algorithms (SODA) (2020)

Amin Hosseininasab (Chair, Thesis Committee) (Tepper School of Business, CMU)
(Thesis Title: Interpretable Learning and Pattern Mining: Scalable Algorithms and Data-Driven Applications) (2020)
Best Paper Finalist at INFORMS Workshop on Data Mining and Decision Analytics (2019)

Ryo Kimura (Chair, Thesis Committee) (Tepper School of Business, CMU)
(Thesis Title: Modern Methodologies for Practical Discrete Optimization Models) (2019)

Christian Tjandraatmadja (Chair, Thesis Committee) (Tepper School of Business)
(Thesis Title: Decision Diagram Relaxations for Integer Programming) (2018)
Honorable mention **MIP 2015 Poster Prize** for "Polar Cuts from Relaxed Decision Diagrams"

Brian Kell (Chair, Thesis Committee) (Mathematical Sciences, CMU)
(Thesis Title: Decision Diagrams for Combinatorial Optimization and Satisfaction) (2015)

Marla Slusky (Chair, Thesis Committee) (Mathematical Sciences, CMU)
(Thesis Title: Integrating Relaxations for Combinatorial Optimization) (2015)

Andre Cire (Co-chair, Thesis Committee) (Tepper School of Business)
(Thesis Title: Decision Diagrams for Optimization) (2014)
Recipient of the **Egon Balas Award** (2012, Tepper), the **Thompson Doctoral Dissertation Award** (2015, Tepper), the **INFORMS Computing Society Student Paper Award** (2014), and the **Doctoral Research Award** of the Association for Constraint Programming (2016)

David Bergman (Co-chair, Thesis Committee) (Tepper School of Business)
(Thesis Title: New Techniques for Discrete Optimization) (2013)
Recipient of the **Egon Balas Award** (2010, Tepper), and the **Doctoral Research Award** of the Association for Constraint Programming (2014)

Doctoral Student Supervision – Thesis Committee Member

Tepper School: Anthony Karahalios, Arash Haddadan, Francisco Cisternas-Vera, Elvin Coban, Canan Gunes, Samid Hoda, Benjamin K. Peterson, Erkut Sonmez

College of Engineering: Aliakbar Izadkhah, Akang Wang, Anirudh Subramanyam, Yash Puranik, Shweta Shah, Sylvain Mouret

School of Computer Science: Jayanth Krishna Mogali

Other institutions: Giovanni Lo Bianco (University of Nantes), Guillaume Perez (University of Nice), Nicholas Downing (University of Melbourne)

Master's Student Supervision

Tepper MBA: Claire Souchet Jacquillat, Katherine Giles, Steven Hollander, Jesse Lambert, Daniel Wiesenfeld, Casey Johnson

School of Computer Science: Sidhartha Mani

Heinz College: Andrea Foncerrada, Gabriela Luongo

Visiting students: Jasper Schuijbroek, Sumit Mitra, Markus Völker

Plenary talks/tutorials at Conference/Symposium

Invited Talk. **Mixed Integer Programming (MIP) Workshop/DANniversary day in honor of Dan Bienstock**, Rutgers University (2020–postponed due to Covid-19)

Invited Tutorial, "Discrete Optimization", **Spring School on Data Science, Machine Learning and Optimization**, Montreal (2020–postponed due to Covid-19)

Invited Tutorial, "Decision diagrams for Discrete Optimization, Constraint programming, and Integer Programming", **Master Class on Hybrid Methods for Combinatorial/Mixed Optimization**, Toulouse, France (2018)

Tutorial, "Decision Diagrams for Sequencing and Scheduling", **International Conference on Automated Planning and Scheduling (ICAPS)** (2016)

Invited Tutorial, "Lagrangian Relaxation in Constraint Programming", **Master Class of the International Conference CPAIOR** (2016)

Invited Tutorial, "Decision Diagram-Based Constraint Programming", **ACP Summer School on Constraint Programming** (2015)

Keynote Presentation, "Decision Diagrams for Optimization and Scheduling", **Workshop on Models and Algorithms for Planning and Scheduling Problems (MAPSP)** (2015)

Invited Tutorials, "Global Constraints" and "Hybrid Constraint and Integer Programming", **ACP Summer School on Constraint Programming** (2014)

Invited Tutorial, "Decision Diagrams for Discrete Optimization", **Montreal Optimization Days** (2014)

Invited Tutorial, "Decision Diagrams for Discrete Optimization", **Tutorial Forum of the AAAI Conference on Artificial Intelligence** (2013)

Invited Plenary Tutorial, "Constraint Programming with Decision Diagrams", **International Conference on Principles and Practice of Constraint Programming (CP)** (2012)

Invited Tutorial, "Operations Research Techniques in Constraint Programming", **ACP Summer School on Constraint Programming** (2012)

Invited Talk, "Decision Diagrams for Discrete Optimization", **Mixed Integer Programming (MIP) Workshop** (2011)

Invited Tutorial, "Global Constraints in Constraint Programming", **Montreal Optimization Days** (2010)

Tutorial,[4] "Soft Global Constraints", **International Conference on Principles and Practice of Constraint Programming (CP)** (2009)

Invited Tutorial, "Soft Global Constraints", **ACP Summer School on Constraint Programming** (2006)

Panel discussions at Conference/Symposium

Decision Diagrams in Constraint Programming: **CP Workshop on Constraint Modelling and Reformulation (ModRef)** (2011) (Panel on the future of CP modeling and solving)

Invited talks at Conference/Symposium

European Conference on Operational Research (EURO) (2006, 2009, 2010, 2019, 2021)

INFORMS Annual Meeting (2005–2014, 2017–2020)

Principles and Practice of Constraint Programming (CP) (2014, 2015, 2017, 2019)

INFORMS Computing Society Conference (2007, 2019)

Symposium on Decision Diagrams for Optimization (2018)

International Symposium on Mathematical Programming (ISMP) (2015, 2018)

CNRS/Aussois Workshop on New Challenges in Scheduling Theory (2018)

INFORMS Optimization Society Conference (2012, 2018)

Dagstuhl Seminar on Planning and Operations Research (2018)

CORS/INFORMS International Conference (2015)

Montreal Optimization Days (2003–2006, 2010, 2012, 2014)

Modeling and OPtimization: Theory and Applications (MOPTA) (2012)

Center for Advanced Process Decision-making (CAPD) Annual Meeting (2012)

SIAM Conference on Optimization (2008)

AAAI Spring Symposium on Distributed Plan and Schedule Management (2006)

CORS/INFORMS Joint International Meeting (2004)

Annual Workshop of the ERCIM Working Group on Constraints (2001)

Conference talks after critical review prior to presentation

Conference on Integer Programming and Combinatorial Optimization (IPCO) (2020)

International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR) (2002-2004, 2006, 2008, 2010, 2019)

International Conference on Automated Planning and Scheduling (ICAPS) (2019)

Principles and Practice of Constraint Programming (CP) (2006, 2016, 2017)

Conference on Innovative Applications of Artificial Intelligence (IAAI) (2007)

Seminars at other academic institutions

University of Connecticut (2019)

Purdue University (2019)

Brown University (2006, 2007, 2017)

University of Michigan (2015)

University of Pittsburgh (2012, 2014)

École Polytechnique de Montréal (2011)

Centrum voor Wiskunde en Informatica (CWI) (2011)

Utrecht University (2011)

University of Nice–Sophia Antipolis (2009)

Eindhoven University of Technology (2009)

Harvard University (2007)

Brown University (2007)

Cornell University (2006)

University of Montreal (2006)

University of Nantes (2004)

University of Bologna (2002, 2003)

Other invited talks

Fortive AI and Data Summit (2020)

Google Paris (2014)

IBM T. J. Watson Research Center (2013)

ExxonMobil (2011)

Paragon Decision Technology/AIMMS (2010)

IBM-ILOG Research, Sophia Antipolis (2009)

External Service

Elected Member, Board of Directors, INFORMS Computing Society (2019–2021)

Member, INFORMS Wagner Prize Committee (2021)

Chair, INFORMS Student Competition Committee (2018–2019), (2019-2020)

Member, INFORMS Student Competition Committee (2017–2018)

Member, Steering Committee of CPAIOR conference series (2015–)

Elected Member, Executive Committee of the Association for Constraint Programming (ACP) (2013–2016, office of secretary)