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CONTACT INFORMATION	University of Southern California 941 Bloom Walk Los Angeles, CA 90089	<i>E-mail:</i> dilkina@usc.edu
INTERESTS	Computational Sustainability; Artificial Intelligence: Search and Constraint Programming; Operations Research: Discrete Optimization My research focuses on the integration of discrete optimization algorithms and machine learning for large-scale real-world planning and network design problems, with applications in wildlife conservation, resilient infrastructure planning, health interventions, and more broadly in applications for environmental sustainability and social good.	
APPOINTMENTS	Assistant Professor, Computer Science, University of Southern California 2018- Assistant Professor, College of Computing, Georgia Tech 2013-2017 Postdoctoral Researcher, Institute for Computational Sustainability, Cornell, 2012-2013 Ph.D. Research Intern, IBM Research T.J. Watson, 2009-2010 Staff Senior Research, Actenum Corporation, 2004-2006 COOP/Intern, Constraint Works Inc. 2002	
EDUCATION	Ph.D. in Computer Science, Cornell University, Jan. 2012 M.Sc. in Computer Science, Cornell University, Jan. 2009 BSc in Computer Science, Simon Fraser University, May 2004	
AWARDS & ACCOMPLISHMENTS	<i>Best Application System demo</i> award, AAMAS Conference <i>Best paper</i> award, AAMAS Workshop on Optimization in Multiagent Systems Okawa Foundation <i>Research Award</i> <i>Certificate of Appreciation</i> from the SMART Consortium <i>Certificate of Appreciation</i> from the AAAI Association for the Advancement of Artificial Intelligence UN Data for Climate Action <i>Challenge Award</i> in Climate Adaptation First Prize, <i>Poster Competition</i> , INFORMS Annual Meeting Georgia Tech Edenfield <i>Faculty Fellowship</i> Award LexisNexis Dean's <i>Excellence Award</i> in the College of Computing KDD <i>Best Student Paper</i> Award Runner-up (Applied Data Science) <i>Fellow</i> at the Brook Byers Institute for Sustainable Systems Lockheed Inspirational Young <i>Faculty Award</i> Raytheon <i>Faculty Fellowship</i> Georgia Power Professor of <i>Excellence Award</i> Recipient of " <i>Thank-a-Teacher</i> " <i>Certificate</i> where students honor great teachers <i>Best paper</i> award, NeurIPS Workshop on Frontiers of Network Analysis <i>Best paper</i> award, ENRE Sessions in Forestry, INFORMS Annual Meeting NSERC Postgraduate <i>Scholarship</i> Graduate <i>Teaching Assistant</i> Award, Computer Science, Cornell University Nominated for <i>Best Paper</i> Award, AAAI: Conference on Artificial Intelligence Google Anita Borg <i>Scholarship</i> Dean of Applied Sciences <i>Convocation Medal</i> , Simon Fraser University CRA Outstanding Undergraduate <i>Researcher Award</i>	2019 2019 2019 2018 2018 2017 2017 2017 2017 2017 2016 2015 2015 2015 2014 2014 2013 2011 2008-2010 2008 2007 2007 2004 2003

<i>Co-founder</i> , Actenum Corp, Vancouver, BC, Canada	2004
B.C. Sugar <i>Achievement Award</i>	2003
International Gordon M. Shrum <i>Scholarship</i>	1999-2004
United World College <i>Scholarship</i>	1997-1999

PUBLICATIONS

Authorship for papers is determined based on students and postdocs first (by contribution), followed by faculty (by contribution) unless otherwise noted.

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| BOOKS, EDITED
BOOKS | [1] F. Fang, M. Tambe, B. Dilkina , A. Plumptre. Artificial Intelligence and Conservation (Part of the “AI and Social Good” book series). <i>Cambridge University Press</i> , 2019. |
| RIGOROUSLY
REFEREED
CONFERENCE
PAPERS | <p>[2] E. Bondi, R. Jain, P. Aggrawal, S. Anand, R. Hannaford, A. Kapoor, D. Dey, J. Piavis, S. Shah, L. Joppa, B. Dilkina, M. Tambe. BIRDSAI: A Dataset for Detection and Tracking in Aerial Thermal Infrared Videos. <i>IEEE Winter Conference on Applications of Computer Vision (WACV)</i>, 2020.</p> <p>[3] L. Xu, S. Gholami, S. Mc Carthy, B. Dilkina, A. Plumptre, M. Tambe, R. Singh, et. al. Stay Ahead of Poachers: Illegal Wildlife Poaching Prediction and Patrol Planning Under Uncertainty with Field Test Evaluations. <i>IEEE International Conference on Data Engineering (ICDE)</i>, 2020 (short paper).</p> <p>[4] C Robinson, A Ortiz, K Malkin, B Elias, A Peng, D Morris, B Dilkina, N Jojic. Human-Machine Collaboration for Fast Land Cover Mapping, AAAI 2020. (acceptance rate $1,591 / 7,737 = 20.6\%$)</p> <p>[5] A Ferber, B Wilder, B Dilkina, and M Tambe. MIPaaL: Mixed integer program as a layer. AAAI 2020. (acceptance rate $1,591 / 7,737 = 20.6\%$)</p> <p>[6] A Perrault, B Wilder, E Ewing, A Mate, B Dilkina, M Tambe. End-to-End Game-Focused Learning of Adversary Behavior in Security Games. AAAI 2020. (acceptance rate $1,591 / 7,737 = 20.6\%$)</p> <p>[7] E Bondi, H Oh, H Xu, F Fang, B Dilkina, M Tambe. To Signal or Not To Signal: Exploiting Uncertain Real-Time Information in Signaling Games for Security and Sustainability. AAAI 2020. (acceptance rate $1,591 / 7,737 = 20.6\%$)</p> <p>[8] B. Wilder, E. Ewing, B. Dilkina, M. Tambe. End to end learning and optimization on graphs. <i>Conference on Neural Information Processing Systems (NeurIPS)</i>, 2019. (acceptance rate $1428/6743 = 21.1\%$)</p> <p>[9] A. Gupta, B. Dilkina. Budget-Constrained Demand-Weighted Network Design for Resilient Infrastructure. <i>IEEE International Conference on Tools with Artificial Intelligence (ICTAI)</i>, 2019.</p> <p>[10] J. A. Killian, B. Wilder, A. Sharma, V. Choudhary, B. Dilkina, and M. Tambe. Learning to prescribe interventions for tuberculosis patients using digital adherence data. <i>ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)</i>, 2019. (acceptance rate $170/1200 = 14.2\%$)</p> <p>[11] E.B. Khalil, A Gupta, B. Dilkina. Combinatorial Attacks on Binarized Neural Networks. <i>International Conference on Learning Representations (ICLR)</i>, 2019. (acceptance rate $500/1591 = 31.4\%$)</p> |

- [12] C. Robinson, N. Jojic, L. Hou, K. Malkin, **B. Dilkina**, R. Soobitskym, J. Czawlytko. Large Scale High-Resolution Land Cover Mapping with Multi-Resolution Data. *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019. [Jojic, MSR senior researcher](acceptance rate 1300/5160 = 25.2%)
- [13] S. Gholami, A. Yadav, L. Tran-Thanh, **B. Dilkina**, M. Tambe. Don't Put All Your Strategies in One Basket: Playing Green Security Games with Imperfect Prior Knowledge. *International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2019. (acceptance rate \approx 24%)
- [14] B. Wilder, **B. Dilkina**, M. Tambe. Melding the Data-Decisions Pipeline: Decision-Focused Learning for Combinatorial Optimization. *AAAI Conference on Artificial Intelligence (AAAI)*, 2019. (acceptance rate 1150/7095 = 16.2%)
- [15] P. Siyari, **B. Dilkina**, C. Dovrolis. Evolution of Hierarchical Structure & Reuse in iGEM Synthetic DNA Sequences. *International Conference on Computational Science*, 2019.
- [16] A. Gupta, M. Farajtabar, **B. Dilkina**, H. Zha. Discrete Interventions in Hawkes Processes with Applications in Invasive Species Management. *International Joint Conference on Artificial Intelligence (IJCAI)*, 2018. (acceptance rate 710/3470 = 20.5%)
- [17] S. Gholami, S. McCarthy, **B. Dilkina**, A. Plumptre, M. Tambe, M. Driciru, et al. Adversary models account for imperfect crime data: Forecasting and planning against real-world poachers. *International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2018. (acceptance rate 151/597 = 25.3%)
- [18] H. Ou, M. Tambe, **B. Dilkina**, P. Vayanos. Imbalanced Collusive Security Games. *Conference on Decision and Game Theory for Security (GameSec)*, 2018.
- [19] A. Gupta, C. Robinson, **B. Dilkina**. Infrastructure Resilience for Climate Adaptation. *ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS)*, 2018. (acceptance rate 24/70 = 34.3%)
- [20] E. Bondi, D. Dey, A. Kapoor, J. Piavis, S. Shah, F. Fang, **B. Dilkina**, R. Hannaford, A. Iyer, L. Joppa, M. Tambe. AirSim-W: A Simulation Environment for Wildlife Conservation with UAVs. *ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS)*, 2018. [Kapoor, MSR senior researcher] (acceptance rate 24/70 = 34.3%)
- [21] C. Robinson, **B. Dilkina**. A Machine Learning Approach to Modeling Human Migration. *ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS)*, 2018. (acceptance rate 24/70 = 34.3%)
- [22] H. Dai, E. B. Khalil, Y. Zhang, **B. Dilkina**, L. Song. Learning Combinatorial Optimization Algorithms over Graphs. *Conference on Neural Information Processing Systems (NeurIPS)*, 2017. (acceptance rate 679/3,240 = 21%) **Spotlight presentation, top 5% of submissions.**
- [23] E. B. Khalil, **B. Dilkina**, G. L. Nemhauser, S. Ahmed, and Y. Shao. Learning to Run Heuristics in Tree Search. *International Joint Conference on Artificial Intelligence (IJCAI)*, 2017. (acceptance rate 660/2540 = 26%).
- [24] H. Xu, B. Ford, F. Fang, **B. Dilkina**, A. Plumptre, M. Tambe, M. Driciru et al. Optimal patrol planning for green security games with black-box attackers. *International Conference on Decision and Game Theory for Security (GameSec)*, 2017. (acceptance rate 29/71 = 40.8%)

- [25] I. Fountalis, C. Dovrolis, **B. Dilkina**, S. D. Keilholz. δ -MAPS: From fMRI Data to Functional Brain Networks. *Complex Networks*, 2017.
- [26] A. Afshar, J. C. Ho, **B. Dilkina**, I. Perros, E. B. Khalil*, L. Xiong, and V. Sunderam. CP-ORTHO: An Orthogonal Tensor Factorization Framework for Spatio-Temporal Data. *ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (SIGSPATIAL)*, 2017. (acceptance rate 39/193 = 20%)
- [27] Y. Xue, X. Wu, D. Morin, **B. Dilkina**, A. Fuller, J.A. Royle, C.P. Gomes. Dynamic Optimization of Landscape Connectivity Embedding Spatial-Capture-Recapture Information *AAAI Conference on Artificial Intelligence (AAAI)*, Feb. 2017. (acceptance rate 638/2590 = 24.6%)
- [28] I. Fountalis, C. Dovrolis, **B. Dilkina**, and S. Keilholz. δ -MAPS: From fMRI Data to Functional Brain Networks. *6th International Conference on Complex Networks and Their Applications* (pp. 1237-1249). Springer, 2017.
- [29] E. B. Khalil, P. Le Bodic, L. Song, G. L. Nemhauser, and **B. Dilkina**. Learning to Branch in Mixed Integer Programming. *AAAI Conference on Artificial Intelligence (AAAI)*, Feb. 2016. [out of order, Dilkina lead faculty author] (acceptance rate 549/2132 = 25.8%)
- [30] A. Jain, C. Robinson, **B. Dilkina**, R.M. Fujimoto. An Approach to Integrate Inter-Dependent Simulation Using HLA with Applications to Sustainable Urban Development *Winter Simulation Conference (WSC)*, Dec. 2016
- [31] M. Madaio, S.-T. Chen, O. Haimson, W. Zhang, X. Cheng, M. Hinds-Aldrich, D.H. Chau, **B. Dilkina**. Firebird: Predicting Fire Risk and Prioritizing Fire Inspections in Atlanta. *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*, 2016. (acceptance rate 142/1115=13.7%, oral presentation 8.6%) **Best Paper Runner Up Award (Applied Data Science Track)**
- [32] P. Siyari, **B. Dilkina**, C. Dovrolis. Lexis: An Optimization Framework for Discovering the Hierarchical Structure of Sequential Data. *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*, 2016. (acceptance rate 142/1115=13.7%, oral presentation 8.6%)
- [33] S. Safarzagdegan Gilan, N. Goyal, **B. Dilkina**. Active Learning in Multi-objective Evolutionary Algorithms for Sustainable Building Design. *Genetic and Evolutionary Computation Conference (GECCO)*, 2016. **Nominated for Best Paper Award**
- [34] S. Ermon, Y. Xue, R. Toth, **B. Dilkina**, R. Bernstein, T. Damoulas, and C. P. Gomes. Learning Large-Scale Dynamic Discrete Choice Models of Spatio-Temporal Preferences with Application to Migratory Pastoralism in East Africa. *AAAI Conference on Artificial Intelligence (AAAI)*, 2015. (26.67%)
- [35] E. B. Khalil, **B. Dilkina**, and L. Song. Scalable diffusion-aware optimization of network topology. *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*, 2014. (14.57%)
- [36] J. Choo, D. Lee, **B. Dilkina**, H. Zhaand H. Park. To Gather Together for a Better World: Understanding and Leveraging Communities in Micro-lending Recommendation. *International World Wide Web Conference (WWW)*, 2014. (13%)
- [37] Y. Xue, **B. Dilkina**, T. Damoulas, D. Fink, C. P. Gomes and S. Kelling. Improving Your Chances: Boosting Citizen Science Discovery. *AAAI Conference on Human Computation and Crowd Sourcing (HCOMP)*, 2013. (30%)

- [38] R. Le Bras, **B. Dilkina**, Y. Xue, C. P. Gomes, K. S. McKelvey, C. Montgomery, and M. K. Schwartz. Robust Network Design for Multispecies Conservation. *AAAI Conference on Artificial Intelligence (AAAI)*, 2013. (29%)
- [39] **B. Dilkina**, K. Lai, R. Le Bras, Y. Xue, C. P. Gomes, A. Sabharwal, J. Suter, K. S. McKelvey, M. K. Schwartz and C. Montgomery. Large Landscape Conservation - Synthetic and Real-World Datasets. *AAAI Conference on Artificial Intelligence (AAAI)*, 2013. (29%)
- [40] D. H. Fisher, **B. Dilkina**, E. Eaton, C. P. Gomes. Incorporating Computational Sustainability into AI Education through a Freely-Available, Collectively-Composed Supplementary Lab Text. *AAAI Symposium on Educational Advances in Artificial Intelligence (EAAI)*, 2012.
- [41] **B. Dilkina**, K. Lai, C. P. Gomes. Upgrading Shortest Paths in Networks. *Intl. Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problem (CPAIOR)*, 2011.
- [42] K. Ahmadizadeh, **B. Dilkina**, C. P. Gomes, A. Sabharwal. An Empirical Study of Optimization for Maximizing Diffusion in Networks. *Intl. Conference on Principles and Practice of Constraint Programming (CP)*, 2010. (36%)
- [43] D. Sheldon, **B. Dilkina**, A. Elmachtoub, R. Finseth, A. Sabharwal, J. Conrad, C. P. Gomes, D. Shmoys, W. Allen, O. Amundsen, B. Vaughan. Maximizing Spread of Cascades Using Network Design. *Conference on Uncertainty in Artificial Intelligence (UAI)*, 2010 (34%)
- [44] **B. Dilkina**, C. P. Gomes. Solving Connected Subgraph Problems in Wildlife Conservation. *Intl. Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)*, 2010.
- [45] **B. Dilkina**, C. P. Gomes. Backdoors in the Context of Learning. *Intl. Conference on Theory and Applications of Satisfiability Testing (SAT)*, 2009. (37.5%)
- [46] **B. Dilkina**, C. P. Gomes, Y. Malitsky, A. Sabharwal, M. Sellmann. Backdoors to Combinatorial Optimization: Feasibility and Optimality. *Intl. Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)*, 2009.
- [47] **B. Dilkina**, C. P. Gomes, and A. Sabharwal. Tradeoffs in the Complexity of Backdoor Detection. *Intl. Conference on Principles and Practice of Constraint Programming (CP)*, 2007. (30.1%)
- [48] **B. Dilkina**, C. P. Gomes, A. Sabharwal. The Impact of Network Topology on Pure Nash Equilibria in Graphical Games. *AAAI Conference on Artificial Intelligence (AAAI)*, 2007. (27%) **Nominated for Best Paper Award**
- [49] **B. Dilkina**, L. Duan and W. S. Havens. Extending Systematic Local Search for Job Shop Scheduling Problems. *Intl. Conference on Principles and Practice of Constraint Programming (CP)*, 2005. (29.3%)
- [50] **B. Dilkina**, and W. S. Havens. Scheduling the National Football League Season. *Innovative Applications in Artificial Intelligence (IAAI)*, 2004.
- [51] W. S. Havens and **B. Dilkina**. A Hybrid Schema for Systematic Local Search. *Canadian Conference on Artificial Intelligence (AI)*, 2004.

- [52] C. Robinson, **B. Dilkina**, J. Moreno-Cruz. Modeling migration patterns in the USA under sea level rise. *PLOS ONE*, 15(1), 2020. (Impact Factor: 2.78)
- [53] C. Gomes, T. Dietterich, C. Barrett, J. Conrad, B. Dilkina, et. al. Computational Sustainability: Computing for a Better World and a Sustainable Future. *Communications of the ACM*, 62(9), 56-65, 2019. (Impact Factor: 4.03)
- [54] Z. Lu, W. Mo, **B. Dilkina**, K. Gardner, S. Stang, J. Huang, M. C. Foreman. Decentralized Water Collection Systems for Households and Communities: Household Preferences in Atlanta and Boston. *Water Research (Elsevier Journal)*, 2019. (Impact Factor: 7.91)
- [55] A. Gupta, D. Morin, **B. Dilkina**, A. Fuller, A. Royle, S. Sutherland and C. P. Gomes. Reserve Design Optimizing Functional Connectivity and Animal Density. *Conservation Biology*, 2019. (Impact Factor: 5.89)
- [56] I. Fountalis, C. Dovrolis, A. Bracco, **B. Dilkina**, and S. Keilholz. δ -MAPS: from spatio-temporal data to a weighted and lagged network between functional domains. *Applied Network Science*, 3(1), p.21, 2018.
- [57] W. Zhang, C. Robinson, S. Guhathakurta, V. M. Garikapati, **B. Dilkina**, M. A. Brown, and R. M. Pendyala. Estimating residential energy consumption in metropolitan areas: A microsimulation approach. *Energy*, Elsevier, 155, 162-173, 2018. (Impact Factor: 3.71)
- [58] W. Mo, Z. Lu, **B. Dilkina**, K. H. Gardner, J. C. Huang, and M. C. Foreman. Sustainable and Resilient Design of Interdependent Water and Energy Systems: A Conceptual Modeling Framework for Tackling Complexities at the Infrastructure-Human-Resource Nexus. *Sustainability*, 10(6), 1-10, 2018. (Impact Factor: 2.07)
- [59] C. Robinson, **B. Dilkina**, J. Hubbs, W. Zhang, S. Guhathakurta, M. A. Brown, and R.M. Pendyala. Machine learning approaches for estimating commercial building energy consumption. *Applied Energy*, 208, 889-904, 2017. (Impact Factor: 7.9)
- [60] V. M. Garikapati, D. You, W. Zhang, R. M. Pendyala, S. Guhathakurta, M. A. Brown, and **B. Dilkina**. Estimating Household Travel Energy Consumption in Conjunction with a Travel Demand Forecasting Model. *Transportation Research Record: Journal of the Transportation Research Board* Vol. 2668-01, pp. 1-10, 2017.
- [61] N. Jafari, B.L. Nuse, C.T. Moore, **B. Dilkina**, J. Hepinstall-Cymerman. Achieving full connectivity of sites in the multiperiod reserve network design problem. *Computers & Operations Research*, Volume 81, Pages 119-127, May 2017. (Impact Factor: 2.96)
- [62] **B. Dilkina**, R. Houtman, C. P. Gomes, C.A. Montgomery, K.S. McKelvey, K. Kendall, T.A. Graves, R. Bernstein, and M.K. Schwartz. Trade-offs and efficiencies in optimal budget-constrained multispecies corridor networks. *Conservation Biology*, 31(1): 192–202, 2017. (Impact Factor: 5.89)
- [63] M. Ilbeigi, **B. Dilkina**. Statistical Approach to Quantifying the Destructive Impact of Natural Disasters on Petroleum Infrastructures. *Journal of Management in Engineering*, 34(1), 2017.
- [64] D. Luo, H. Xu, Y. Zhen, **B. Dilkina**, H. Zha, H., X. Yang, W. Zhang. Learning Mixtures of Markov Chains from Aggregate Data with Structural Constraints. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 2016. (Impact Factor: 2.77)

- [65] **B. Dilkina**, C. P. Gomes, and A. Sabharwal. Tradeoffs in the complexity of backdoors to satisfiability: dynamic sub-solvers and learning during search. *Annals of Mathematics and Artificial Intelligence*, 2014. (Impact Factor: 1.01)
- BOOK CHAPTERS [66] P. Siyari, **B. Dilkina**, C. Dovrolis. Emergence and Evolution of Hierarchical Structure in Complex Systems. In *Dynamics of and on complex networks*. Springer, 2019 (refereed).
- [67] H. Xu, B. Ford, F. Fang, **B. Dilkina**, A. J. Plumptre, M. Tambe, M. Driciru et al. Optimal Patrol Planning Against Black-Box Attackers. In *Artificial Intelligence and Conservation*, edited by F. Fang, M. Tambe, B. Dilkina, A. Plumptre, Cambridge University Press, 2019.
- REFEREED [68] C. Robinson, L. Hou, K. Malkin, R. Soobitskym, J. Czawlytko, **B. Dilkina**, N. Jojic. Human-in-the-loop framework for land cover prediction Presenters (Demo). *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019. [Jojic, MSR senior researcher]
- CONFERENCE [69] E. Bondi, H. Oh, F. Fang, H. Xu, **B. Dilkina**, M. Tambe. Using Game Theory in Real Time in the Real World: A Conservation Case Study (Demo). *AAMAS*, 2019. (Best application system demo award)
- EXTENDED [70] E. Bondi, H. Oh, H. Xu, F. Fang, **B. Dilkina**, M. Tambe. Broken Signals in Security Games: Coordinating Mobile Patrollers and Sensors in the Real World (Extended Abstract). *AAMAS*, 2019.
- ABSTRACTS & [71] K. Wang, B. Wilder, S-C. Suen, **B. Dilkina**, M. Tambe. Improving GP-UCB DEMOS Algorithm by Harnessing Decomposed Feedback. *4th ECML PKDD Workshop on Data Science for Social Good*, 2019.
- [72] B. Wilder, **B. Dilkina**, M. Tambe. End to end learning and optimization on graphs. *ICML Workshop on Learning and Reasoning with Graph-Structured Representations*, 2019.
- [73] E. Bondi, H. Oh, H. Xu, F. Fang, **B. Dilkina**, M. Tambe. Wildlife GUARDSS: Using Uncertain Real-Time Information in Signaling Games for Sustainability. *ICML Workshop on AI for Social Good*, 2019.
- [74] B. Wilder, J. Killian, A. Sharma, V. Choudhary, **B. Dilkina**, M. Tambe. Integrating optimization and learning to prescribe interventions for tuberculosis patients. *10th International Workshop on Optimization in Multiagent Systems (OptMAS) at AAMAS*, 2019. (Best paper award)
- [75] C. Robinson, F. Hohman, **B. Dilkina**. A Deep Learning Approach for Population Estimation From Satellite Imagery. *1st ACM SIGSPATIAL Workshop on Geospatial Humanities* (pp. 47-54). ACM, 2017.
- [76] C. Robinson, A. Shirazi, M. Liu, and **B. Dilkina**. Network Optimization of Food Flows in the US. *International Workshop on Big Data for Sustainable Development at the IEEE International Conference on Big Data*, 2016.
- [77] U. Ahsan, O. Sopova, W. Stayton, **B. Dilkina**. Interactive tool to prioritize housing options for refugee resettlement. *Bloomberg Data for Good Exchange*, Sept. 2016.

- [78] J. Belknap, C. Foster, S. Moringi, A. Beasley, A. Giarrusso, **B. Dilkina**. Helping to Preserve Atlanta’s Urban Tree Canopy. *Bloomberg Data for Good Exchange*, Sept. 2015.
- [79] M. Madaio, O. Haimson, W. Zhang, X. Cheng, M. Hinds Aldrich, **B. Dilkina**, D.H. Chau. Identifying and Prioritizing Fire Inspections: A Case Study of Predicting Fire Risk in Atlanta. *Bloomberg Data for Good Exchange*, Sept. 2015.
- [80] **B. Dilkina**. Protecting landscape connectivity for species persistence in the face of urbanization and climate change. *International Workshop to Explore Research Frontiers through US Engagement in the Lower Mekong Basin (US/LMB)*, organized by NSF, 2015.
- [81] E. B. Khalil, **B. Dilkina**, and L. Song. Learning-to-Branch in Mixed Integer Programming. *Mixed Integer Programming Workshop*. June 2015.
- [82] **B. Dilkina**. Optimization Approaches for Pedestrian Connectivity. *NSF Early-Career Investigators Workshop on CPS and Smart City (includes a stipend award of \$1,500)*, Apr. 2015.
- [83] S. Safarzaghan Gilan and **B. Dilkina**. Sustainable Building Design: A Challenge at the Intersection of Machine Learning and Design Optimization. *AAAI Workshop on Computational Sustainability*. Jan. 2015.
- [84] N. Jain and **B. Dilkina**. Coarse models for bird migrations using clustering and non-stationary Markov chains. *AAAI Workshop on Computational Sustainability*. Jan. 2015.
- [85] E. B. Khalil, **B. Dilkina**, and L. Song. CuttingEdge: Influence minimization in networks. *NIPS Workshop: Frontiers of Network Analysis: Methods, Models, and Applications*, 2013. (Best student paper award)
- [86] **B. Dilkina**, T. Damoulas, C. P. Gomes, D.Fink. AL2: Learning for Active Learning. *NIPS Workshop: Machine Learning for Sustainability*, 2011.
- [87] A. E. Kirkpatrick, **B. Dilkina**, and W. S. Havens. A Framework for Designing and Evaluating Mixed-Initiative Optimization Systems. *Workshop on Mixed-Initiative and Planning at ICAPS*, 2005.

NON-REFEREED
PUBLICATIONS

- [88] **B. Dilkina**, E. B. Khalil, and G. L. Nemhauser. Comments on: On learning and branching: a survey. *TOP: An Official Journal of the Spanish Society of Statistics and Operations Research*, vol. 25, issue 2, 242-246, 1–5. 2017.
- [89] U. Ahsan, O. Sopova, W. Stayton, and **B. Dilkina**(summer intern students). Refugee Resettlement Housing Scout. arXiv preprint arXiv:1609.09066, 2016.
- [90] S.V. Albrecht, J.C. Beck, D.L. Buckeridge, A. Botea, C. Caragea, C.H. Chi, T. Damoulas, **B. Dilkina**, E. Eaton, P. Fazli and S. Ganzfried. Reports on the 2015 AAAI Workshop Series. *AI Magazine*, 2015.

SUBMITTED
PAPERS

Refereed Journal Articles (with date of submission)

- [91] P. Armsworth, A. Benefield, B. Dilkina, R. Fovargue, H. Jackson, D. Le Bouille, C. Nolte. Prioritizing land protection over large spatial scales: an application to biodiversity conservation in the United States. *Ecological Applications* (submitted Aug 26, 2019)

PATENTS

- [1] **US Patent 8554519**: Method for designing the layout of turbines in a windfarm. **B. Dilkina**, J. Kalagnanam, E. Novakovskaia. Assignee: IBM Corp. Granted Oct 8, 2013.
- [2] **US Patent 7606776**: Flexible Constraint Propagation Engine for Combinatorial Optimization Problems. W. S. Havens and **B. Dilkina**. Assignee: Actenum Corp. Granted Oct 20, 2009.

PRESENTATIONS

KEYNOTE
ADDRESSES AND
PLENARY
LECTURES

- [1] *Graph Representation Learning for Optimization on Graphs*. NeurIPS Workshop on Graph Representation Learning, Dec 2019
- [2] *Machine Learning and Optimization with Applications in Sustainability* 25th International Conference on Principles and Practice of Constraint Programming (CP), Oct. 2019
- [3] *Artificial Intelligence for Wildlife Conservation* The 18th Symposium on Systems Analysis in Forest Resources, Keynote, Mar. 2019
- [4] *Learning to Branch in Mixed Integer Programming* The 10th Learning and Intelligent Optimization Conference (LION), Keynote, May 2016

INVITED TALKS &
SEMINAR
PRESENTATIONS

- [5] *Leveraging AI for Resilient Infrastructure Planning* 5th Annual Le Val Lund Lecture Student Symposium on Lifeline Infrastructure and Community Resilience, Nov 2019
- [6] *Learning-Driven Algorithms for Discrete Optimization* Toyota Technological Institute of Chicago, Workshop on Automated Algorithm Design, August 2019
- [7] *Using AI to fight wildlife poaching* RE•WORK AI for Good Summit, June 2019
- [8] *AI and OR for Conservation* CPAIOR Conference, Master Class on Social Good, June 2019
- [9] *Learning-Driven Algorithms for Discrete Optimization* MIT, CSAIL Seminar on Algorithms and Complexity, April 2019
- [10] *Learning-Driven Algorithms for Discrete Optimization* SoCAL Machine Learning Symposium, March 2019
- [11] *Learning-Driven Algorithms for Discrete Optimization* SPOC Symposium "Machine Learning, Networks and Combinatorial Optimization", France, Dec. 2018
- [12] *AI for Wildlife Conservation* ESSEC Business School, Seminar, France, Dec. 2018
- [13] *AI for Wildlife Conservation* Microsoft Research India, Sept. 2018
- [14] *Learning-Driven Algorithms for Discrete Optimization* University of Michigan, AI Seminar, Nov. 2018

- [15] *Learning-Driven Algorithms for Discrete Optimization*
UCLA, CS Seminar, Nov. 2018
- [16] *Machine Learning helps Discrete Optimization*
Information Sciences Institute, Nov. 2018
- [17] *Machine Learning helps Discrete Optimization*
Carnegie Mellon University, Tepper Operations Research Seminar, Apr. 2018
- [18] *Machine Learning helps Discrete Optimization*
California Institute of Technology, Computing and Mathematical Sciences, Apr. 2018
- [19] *Discrete Optimization Challenges in Computational Sustainability*
Oxford University, Computer Science Seminar, Oct. 2018
- [20] *Conservation Planning for Landscape Connectivity*
Wildlife Institute of India, Sept. 2018
- [21] *Predicting Poaching Hot Spots from Previous Patrols*
Wildlife Institute of India, Sept. 2018
- [22] *Network Design Approaches to Multi-species Biodiversity Conservation*
Computational Sustainability Virtual Seminar Series, Nov. 2017
- [23] *Network Design Approaches to Biodiversity Conservation*
Emory University, Population Biology, Ecology and Evolution Seminar Series, Apr. 2017
- [24] *Network Design Approaches to Biodiversity Conservation*
Clemson University, Industrial Engineering Distinguished Researcher Seminar Series, Aug. 2016
- [25] *Challenges in Computational Sustainability*
University of Southern California, CS Colloquium, Mar. 2017
- [26] *Machine Learning for Branch and Bound Search*
Clemson University, CS Seminar, Oct. 2016
- [27] *Machine Learning for Branch and Bound Search*
Cornell University, AI Seminar, Apr. 2016
- [28] *Learning to branch for Mixed Integer Programming*
Sandia National Lab, Host: Jean Paul Watson. Dec. 2015
- [29] *Learning to branch for Mixed Integer Programming*
Georgia Tech, ISYE Discrete Optimization Seminar, Oct. 2015
- [30] *Optimization Approaches for Conservation Planning*
University of Georgia, Warnell School of Forestry and Natural Resources, Feb. 2015
- [31] *Optimization Approaches for Conservation Planning*
Oak Ridge National Lab, Nov. 2013
- [32] *Computational advances in cost-effective large-scale conservation planning*
University of California Santa Cruz, April 2013
- [33] *Challenges in Computational Sustainability*
Stony Brook University, CS Colloquium, April 2013
- [34] *Challenges in Computational Sustainability*
Georgia Institute of Technology, CSE Seminar, Feb. 2013

GRANTS, GIFTS,
AND CONTRACTS

I have been a PI or co-PI on research grants totaling \$2,070,750. My portion of research funding overall being \$1,501,726. In addition, I have brought in NSF REU funding as PI at \$393,827.

As Principal Investigator

- [1] **National Science Foundation** Award #1935451
ISN2: Detecting and Interdicting Illicit Wildlife Trafficking Supply Chains
Period: 09/01/2019-08/31/2022
Total Amount of USC subaward: \$150,000 (my portion: 100%)
Role: PI of USC subaward, lead PI Meredith Gore, Michigan State U.
- [2] **DHS Center of Excellence “Critical Infrastructure Resilience Institute”**
Leveraging AI for Disaster Response: scalable and effective algorithms for strategic planning and tactical response
Period: 07/01/19-06/31/2020
Total Amount: \$253,559 (my portion is \$131,505)
Role: PI
- [3] **National Science Foundation** Award #1914522
NSF CRISP Type 1: Collaborative Research: Sustainable and Resilient Design of Interdependent Water and Energy Systems at the Infrastructure-Human-Resource Nexus
Period: 09/01/16 - 08/31/20
Total Amount: \$246,937 (my portion: 100%)
Role: PI
- [4] **Microsoft Gift**
Gift to support AI for Earth research
Start: 06/15/2019
Total Amount: \$55,000 (my portion: 100%)
- [5] **Microsoft AI for Earth**
Supporting Conservation Planning using Mathematical Optimization
Period: 03/01/2018-12/31/2018
Total Amount: \$15,000 (my portion: 100%)
- [6] **Microsoft AI for Earth**
Deep Learning Approach for Population Estimation from Satellite Imagery
Period: 12/01/17-07/31/2018
Total Amount: \$15,000 (my portion: 100%)
- [7] **National Science Foundation** Award #1522054
CompSustNet: Expanding the Horizons of Computational Sustainability
Period: 01/01/16-01/01/2021
Total Amount (GeorgiaTech Subaward): \$190,000 (my portion: 100%)
Role: PI of GeorgiaTech subaward (transferred to Polo Chau, supporting my PhD students Gupta and Robinson) , lead PI Carla Gomes, Cornell U.
- [8] **National Science Foundation** Award #1659757
REU Site: Civic Data Science
Period: 03/01/17 - 02/29/20
Total Amount: \$393,827 (this is an Educational grant, I was in charge of leading the summer program)
Role: PI with Co-PI Chris Le Dantec (transferred to Chris Le Dantec)
- [9] **DOI Southeast Climate Adaptation Science Center at NCSU**
Turning the Science of Connectivity into Action: Finding Consensus Models, Key Nodes, and Priority Parcels

Period: 10/13/16 - 04/15/17
Total Amount: \$17,343 (my portion: 100%)

- [10] **Georgia Tech, College of Computing**
Raytheon Faculty Fellowship: Understanding the Dynamics and Optimizing Conservation Strategies for Migratory Species
Period: FY 2015-16
Total Amount: the funds enough to support one 50% GRA for one year (for one student co-advised by both PIs, value around)
Role: PI with Co-PI Constantine Dovrolis

As Co-Principal Investigator

- [11] **National Science Foundation** Award #1763108
Preserving Biodiversity via Robust Optimization
Period: 07/15/18 - 07/14/22
Total Amount: \$535,335 (my portion: 50%)
Role: co-PI with PI Phebe Vayanos
- [12] **Lockheed Martin Corporation (Primary : DARPA)**
Multiplayer attacker-defender security games
Period: 12/17/17-07/18/18
Total Amount: \$100,000 (my portion: \$18,608 \approx 19%)
Role: co-PI with PI Milind Tambe, and co-PI Phebe Vayanos
Candidate's Share: \$18,608
- [13] **Exxon Mobil Upstream Research Co.**
Leveraging Machine Learning and High Performance Computing
Period: 01/01/15 – 12/31/17
Total Amount: \$405,940 (my portion: \$165,000 \approx 40%)
Role: Co-PI with PI George Nemhauser, and Co-PIs Shabbir Ahmed and David Bader
- [14] **Sustainable Energy Institute, Georgia Tech**
Application of a networked infrastructure model in policy simulations for the Atlanta metropolitan region
Period: 10/01/15 – 10/01/17
Total Amount: \$86,636 (my portion: \$18,500 = 21%)
Role: Co-PI with PI Subhro Guhathakurta, and Co-PIs Merilyn Brown and Ram Pendyala

As Senior Personnel or Contributor

- [15] **DARPA (via ISI)**
Phase 2 Deep Learning Agents and Game Theory for Military Decision-making (LAG-MD)
Period: 08/29/2019-06/09/2020
Total Amount: \$475,000 (my portion: \$115,000 24%)
Role: Senior Personnel with PI Jim Blythe, and co-PI Emilio Ferrara
- [16] **DARPA (via ICT)**
Graphical Encoding of First Principles for Agent-Based Social Simulation (GEF-PABSS)
Period: 12/15/2017-06/14/2019
Total Amount: \$2,495,000 (my portion: \$96,166)
Role: Senior Personnel with PI David Pynadath, and Co-PIs Richard S. John, Lynn C. Miller, Stephen J. Read, Milind Tambe, and Stacy C. Marsella

- [17] **National Science Foundation**
 Graduate Experience: Building Data Science Workforce Skills Through Social Good, Grand Challenges, and Local Engagement
 Period: 08/01/16 - 07/31/17
 Total Amount: \$105,970 (This is an Educational grant that I was in charge of executing, it supported 0.5 of my summer months = \$4,500)
 Role: Senior Personnel with PI Srinivas Aluru
- [18] **National Science Foundation**
 RIPS Type 2: Participatory Modeling of Complex Urban Infrastructure
 Period: 09/01/14-09/01/17
 Total Amount: \$2,499,999 (my portion: no assigned funding)
 Role: Senior Personnel with PI John C. Crittenden, and Co-PIs Baabak Ashuri, Jennifer J. Clark, Richard M. Fujimoto, and Marc J. Weissburg

**SOCIETAL AND
 POLICY IMPACTS**

My work in computational sustainability has high societal and policy impacts as it is directly targeted at addressing some of the most pressing global challenges our society faces today. Hard optimization problems in the form of constrained resources and complex objectives arise in many policy and decision making settings pertinent to sustainability, especially urban planning and biodiversity conservation planning. The major impacts include:

- (1) creating new principles and techniques broadly applicable to solving large scale real-world optimization problems including spatial optimization problems in sustainability
- (2) helping practitioners, policy makers, and researchers who are not computer science or optimization experts to compute and understand the tradeoffs between decisions they need to make;
- (3) transform the new cohort of computer scientists into also a cohort of global citizens keen to apply their skills and craft for social good;

TEACHING

Course Development My educational agenda is tightly coupled with my research interests in addressing sustainability challenges by harnessing the power of computer science and algorithms. My educational program centers around growing a new cohort of diverse computer science students, with deep awareness of their society and environment, and who contextualize the skills they learn in courses with opportunities to make a difference. My educational plan consists of the two curriculum development components: 1) infusing existing core courses with example applications related to sustainability, and 2) developing new courses focused on ‘Computational Sustainability’ and ‘AI for Social Good’, which teach techniques from data mining, machine learning and optimization in the context of real-world problems related biodiversity, climate, disasters and urban planning, agriculture, poverty, homelessness, and health. I also actively engage students in individualized directed research courses to work on problems in these domains.

COURSES TAUGHT **Lecture Courses**

Semester	Course	Size
USC		
Fall 2019	CSI 499 AI for Social Good	14
Spring 2019	CSI 499 AI for Social Good	15
Fall 2018	CSI 699 Topics in Discrete Optimization & Learning	14
GT		
Spring 2017	CSE 8803 / 4803 Computational Sustainability	15
Spring 2017	ECE 2811 VIP: BeeSNAP	14
Fall 2016	CSE 6140 A,Q / CX 4140 CSE Algorithms	142
Fall 2016	ECE 2811 VIP: BeeSNAP	14
Spring 2016	CSE 8803 Computational Sustainability	6
Spring 2016	ECE 2811 VIP: BeeSNAP	18
Fall 2015	CSE 6140 A,Q/CX 4140 CSE Algorithms	92
Fall 2015	ECE 2811 VIP: BeeSNAP	14
Spring 2015	CSE 8803 Computational Sustainability	6
Fall 2014	CSE 6140 A,Q,Q3 CSE Algorithms	89
Spring 2014	CSE 8803 Computational Sustainability	13

Graduate Directed Research

Semester	Course	Student
USC		
Fall 2019	INF 590 Directed Research	Laksh Matai
Fall 2019	CS 790 Directed Research	Taoan Huang
GT		
Summer 2017	CSE 8903 Special Problems	Matthew May
Spring 2017	CSE 8903 Special Problems	Unaiza Ahsan
Fall 2015	CSE 8903 Special Problems	Sumithra Sriram
Spring 2015	CSE 8903 Special Problems	Hamid Reza Hassanzadeh
Fall 2014	CS 6999 Masters Thesis	Spoorthi Ravi
Fall 2014	CSE 8903 Special Problems	Parminder Singh Bhatia
Fall 2014	CSE 8903 Special Problems	Siamak Safarzagagan Gilan
Spring 2014	CS 6999 Masters Thesis	Spoorthi Ravi

Undergraduate Directed Research

Semester	Course	Student
USC		
Fall 2019	CS 490 Directed Research	Guancheng Qiu
Fall 2019	CS 490 Directed Research	Lucas Hu
Summ. 2019	CS 490 Directed Research	Guancheng Qiu
Summ. 2019	CS 490 Directed Research	Lucas Hu
GT		
Summ. 2017	CS 4698 Research Assistantship	Do, Younje
Spring 2017	CS 2699 Undergraduate Research	Do, Younje
Fall 2016	CS 2699 Undergraduate Research	Do, Younje
Spring 2016	CS 4980 Research Capstone	Renee Bach
Fall 2015	CS 4698 Research Assistantship	Renee Bach
Spring 2015	CS 4699 Undergraduate Research	Jin Kyoung Kwon
Fall 2014	CS 2699 Undergraduate Research	Renee Bach

Guest Lectures

- USC CSCI-697 CSCI PhD Seminar, 2018, 2019, 2020
- GT CX4230: Computer Simulation (UG). Instr: Prof. Vuduc. Spring 2015, Spring 2016, Fall 2016.
- GT CSE6740: Machine Learning I. Instr: Prof. Le Song. Fall 2013.

- Cornell Topics in Computational Sustainability. Instr: Carla Gomes. Spring 2011.

STUDENT
GUIDANCE

PhD Students Supervised: total 9 (5 USC, 4 GT), 2 graduated

Payam Siyari (GT) placed at Uber	Ph.D. CSE, co-advisor with Dovrolis	Fall'14 - Fall'18
Elias Khalil (GT) IBM PhD Fellowship placed IVADO PostDoc placed Assist. Prof. U. Toronto	Ph.D. CSE, advisor	Fall'14 – Spring'19
Amrita Gupta (GT) – Passed Proposal	Ph.D. CSE, advisor	Fall'15 -
Caleb Robinson (GT) – Passed Proposal	Ph.D. CSE, advisor	Fall'15 -
Elizabeth Bondi (USC) – Passed Qualifiers	Ph.D. CS, co-advisor with Tambe	Fall'16 - Summer'19
Jackson Killian (USC) NSF Grad. Fellowship	Ph.D. CS, co-advisor with Tambe	Fall'18 - Summer'19
Lily Xu (USC)	Ph.D. CS, advisor	Fall'18 - Summer'19
Aaron Ferber (USC)	Ph.D. CS, advisor	Spring'18 -
Ravi Lanka (USC)	Ph.D. CS, advisor	Fall'19 -

Masters Students Advised: total 8 (3 USC, 6 GT)

USC		
Ayush Singh		Fall'19-
Shuo Feng		Summer'19-Fall'19
Laksh Kumar Matai		Fall'18 - Fall'19
Georgia Tech		
Sumithra Sriram	Placed: BlackRock	Fall'17
S. Safarzaghan	Placed: Tower Research Capital	Fall'14
Spoorthi Ravi	Placed: PayPal	Spring-Fall'14
Naman Goyal	Placed: Yelp	Fall'14 - Spring'16
Nitin Jain	Placed: Aetna	Fall'13 - Spring'14
Elias Khalil	Placed: GT CSE Ph.D.	Fall'13 - Spring'14
M.D. Williamson Fellowship'14	student Thesis: “Optimizing the Structure of Diffusion Networks: Theory and Algorithms”	
D.V. Jackson Fellowship'13		

Undergraduate Students Advised: total 15 (USC: 4, GT: 11)

Chi San Chen (Jason), Gauri Madhok, Lucas Hu, Guancheng Qui (Ivan) (USC, Undergraduate Research)

Yonje Do, Jin Kyoung Kwon, Premkumar Saravanan (Georgia Tech, Undergraduate Research)

Renee Bach (Georgia Tech Undergraduate Thesis, Advisor), **President's Undergraduate Research Award (PURA)**

Heather Strathearn, Valerie Washington (underrepresented), Olivia Williams (underrepresented) (Project Mentor to Bee-INSPIRED Summer Interns)

Sachin Grover, Ankit Jain, Gokula Krishnan, Manfred Torres (Project Mentor to CRUISE summer intern)

Ph.D. Thesis Committee Member: total 19 (3 USC, 16 GT)

1. Rebecca Peer. USC/CEE. Adv: Sanders, Defense: 03/07/2019
2. Jiachen Zhang. USC/CEE. Adv: Ben-Weiss, Defense: 11/30/2018
3. Arash Mohegh. USC/CEE. Adv: Ben-Weiss, Defense: 08/01/2018
4. Mengmeng Liu. GT/CEE. Adv: David Frost. Proposal: 08/14/2017
5. Kaeser Sabrin. GT/CS. Adv: Constantine Dovrolis. Proposal: 05/08/2017, Defense: 10/31/2018
6. Philip Pecher. GT/ISYE-CSE. Adv: Richard Fujimoto, Proposal: 01/24/2017
7. Mehrdad Farajtabar. GT/CSE. Adv: Hongyan Zha. Proposal: 04/28/2017, Defense: 03/30/2018
8. Eisha Nathan. GT/CSE. Adv: David Bader. Proposal: 03/20/2017, Defense: 03/14/2018
9. Anita Zakrzewska. GT/CSE. Adv: David Bader. Proposal: 11/29/2016, Defense: 03/16/2018
10. Lluís Miquel Munguia. GT/CSE. Adv: David Bader. Proposal: 01/xx/2016, Defense: 10/30/2017
11. Ezgi Karabulut. GT/ISYE. Adv: Ahmed/Nemhauser, Defense: 08/07/2017
12. Robert Pienta. GT/CSE. Adv: Polo Chau. Proposal: passed, Defense: 06/27/2017
13. Hongteng Xu. GT/CSE. Adv: Hongyuan Zha. Proposal: Passed. Defense: 06/02/2017
14. Wenwen Zhang. GT/Arch. Adv: Subhrajit Guhathakurta, Proposal: 06/29/2016, Defense: 05/08/2017
15. Mohammed Ilbeigi. GT/Building Construction. Adv: Baabak Ashuri. Proposal: 12/01/2015, Defense: 03/31/2017
16. Aditi Misra. GT/Civil Eng. Adv: Kari Watkins. Proposal: 05/22/2014, Defense: 06/23/2016
17. Ilias Fountalis. GT/CS. Adv: Constantine Dovrolis. Proposal: 12/03/2014, Defense: 03/30/2016
18. Felipe Castrillon: GT/Civil Eng. Adv: Randy Guensler. Defense: 08/11/2015
19. Liangda Li, GT/CSE. Adv: Hongyuan Zha. Proposal: 4/9/2014. Defense: 04/22/2015

Ph.D. Qualifying Exam Committee Member (18 total: 3 USC, 15 GT)

1. Nitin Gupta, USC/CS. Adv: Liu, 12/03/2019
2. Ashok Deb, USC/CS. Adv: Ferrara, 06/21/2019
3. Kai Wang, USC/CS. Adv: Tambe, 04/04/2019
4. Aida Rahmattalabi, USC/CS. Adv: Tambe/Vayanos, 09/06/2018
5. Liron Cohen, USC/CS. Adv: Koenig, 05/11/2018
6. Ari Siesser. GT/ISYE-CSE. Adv: Pokutta
7. Yuzhi Guo. GT/CEE-CSE. Adv: Frost
8. Shaojun Ma. GT/Math-CSE. Adv: Cho
9. Mengmeng Liu. GT/CEE-CSE. Adv: Frost. 04/18/2017
10. Yuyu Zhang. GT/CSE. Adv: Jimeng Sun. 11/18/2016
11. Rundong Du. GT/CSE. Adv: Haesun Park. 08/29/2016
12. Shang-Tse Chen. GT/CSE. Adv: Polo Chau. 03/29/2016
13. Kaeser Sabrin. GT/CS. Adv. Constantine Dovrolis. 12/04/2015
14. Sara Karamati. GT/CSE. Adv: Rich Vuduc. 12/03/2015

15. Eisha Nathan. GT/CSE. Adv: David Bader. 12/02/2015
16. Chirag Jain. GT/CSE. Adv. Srinivas Aluru. 11/23/2015
17. Camille Barcher. GT/CoA. Adv: Steve French. 10/06/2015
18. Patrick Flick. GT/CSE. Adv: Srinivas Aluru. 04/09/2015
19. Bo Dai. GT/CSE. Adv: Le Song. 04/22/2015
20. Mehrdad Farajtabar. GT/CSE. Adv: Hongyuan Zha. 11/25/2014

External PhD Committee Member

1. Yu Yang. GT/ISYE. Adv: Boland/Savelsbergh

SERVICE

PROFESSIONAL SERVICE

Editorial Board Memberships

Constraints (journal), Editorial Board member
Ecosphere (journal), Subject Matter Editor (Emerging Technologies)

Society Offices, Activities, and Memberships

AAAI member
ACM member
SIAM member
INFORMS member
Committee Member, INFORMS Energy, Natural Resources, Environment Section (ENRE) Best Publication Award

Invited Panelist

AI Earth Summit, Invited Panel, April 2019
Evidence to Action: Research to Address Illegal Wildlife Trade Event, Panel on “Using ranger-generated data for predictive patrol planning”, Sept. 2018
National Fire Protection Association Conference & Expo, Panel on Predictive Community Risk Reduction – Using Data Science to Reduce Fires, 2016
EMBARK: The Independent Sector National Conference, Panel on Practical Techniques for Social Impact Measurement, 2015

Invited Tutorials

Tutorial: AI and OR for Conservation. Bistra Dilkina. Master Class at 16th International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR). June 2019
Tutorial: Machine Learning for Branch and Bound. Bistra Dilkina. Master Class at 15th International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR). June 2018
Tutorial: Discrete Optimization Techniques & Applications in Sustainability. Bistra Dilkina. Doctoral Consortium on Computational Sustainability. July 2017
Tutorial: Research Challenges in Computational Sustainability. Bistra Dilkina & Stefano Ermon. International Joint Conference on AI (IJCAI). July 2016
Tutorial: Computational Advances in Conservation Planning for Landscape Connectivity. Bistra Dilkina. International Conference on Computational Sustainability, Copenhagen, Denmark. 2012

Conference Leadership

Co-Chair	Conference on Prestigious Applications of Intelligent Systems (co-located with ECAI) 2020
Co-Chair	CPAIOR Master Class “AI for Social Good” 2019
Chair	Symposium on AI for Conservation, Feb 8, 2019
Associate Chair	1st ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS) 2018
Co-Chair	AAAI Special track on Computational Sustainability 2018
Co-Chair	AAAI Special track on Computational Sustainability 2017
Co-Chair	Doctoral Consortium on Computational Sustainability 2017
Co-Chair	4th International Conference on Computational Sustainability 2016
Publicity Chair	Learning and Intelligent Optimization Conference (LION) 2016
Publicity Chair	International Conference on Constraint Programming, AI and Operations Research (CPAIOR) 2013
Co-Chair	NESCAI: North East Student Colloquium on Artificial Intelligence 2008

Workshop Organizer

co-Organizer, TTIC Workshop on Automated Algorithm Design 2019
 co-Chair, KDD Workshop on Data Mining and AI for Conservation 2019
 Chair, IJCAI Workshop on AI & Conservation 2018
 Chair, AAAI Workshop on Computational Sustainability 2015
 Chair, CROCS: International Workshop on Constraint Reasoning and Optimization for Computational Sustainability 2012

Summer Program Organizer

Co-Organizer of USC Center for AI in Society Summer Fellowship Program, 2018
 Co-Director of Data Science for Social Good Summer Program, 2015/2016/2017

Invited Session Chair

INFORMS Annual Conference, ‘ML & Discrete Optimization’, 2018, 2019
 Intl. Symposium on Mathematical Programming, ‘ML & Discrete Optimization’, 2018
 Intl. Symposium on Mathematical Programming, ‘Computational Sustainability’, 2018
 INFORMS Annual Conference, ‘Spatial Optimization and Conservation Reserve Design’, 2015, 2016, 2017
 Intl. Symposium on Mathematical Programming, ‘Computational Sustainability’, 2015

Grant Reviewer / Panelist

IBM Watson AI XPRIZE: Member of the judging panel for a \$5 million global competition to develop AI technologies to tackle the world’s grand challenges.
 NSF Review Panel, 2016, 2018

Senior Conference Program Committee/ Area Chair

AAAI 2019, 2020

Conference Program Committee (total 30)

AAAI “AI for Social Impact Track” 2020
 AAAI Diversity event “Tray AI” for high school students 2020
 ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS) 2019
 Bloomberg Data for Good Exchange 2019
 AAAI 2011-2020
 IJCAI 2009, 2011, 2013, 2015-2017
 KDD 2015, 2016, 2018-2019
 ICML 2018-2019

NeurIPS 2018
CPAIOR 2013, 2018-2019
LION 2016-2018
CP 2016-2017
CompSust 2012

Conference Reviewer

IJCAI 2007; AAAI 2006, 2007; ECAI 2010 ; CP 2007, 2016; CPAIOR 2006-2008; SAT 2012; UAI 2012; SODA 2009; AAMAS 2008; STACS 2007

Journal Reviewer

Proceedings of the National Academy (PNAS)
IEEE Transactions on Knowledge and Data Engineering (TKDE)
Operations Research (OR) journal
European Journal of Operational Research
EURO Journal on Computational Optimization
INFORMS Journal of Computing
Annals of Mathematics and AI
IEEE Transactions on Computers

UNIVERSITY
SERVICE

University of Southern California

Viterbi School of Engineering Committee Service

Associate Director for USC Center on AI in Society, 2018-Present
Viterbi Research Committee Member, Fall 2018-present
Faculty Advisor for Women in Computing student organization, 2019-
Faculty Advisor for CAIS++ student organization, 2019
USC CAIS Summer Fellowship Program co-Organizer, 2018
USC CAIS Seminar Series co-Organizer, Spring 2018-present

Department of Computer Science Committee Service

Faculty Hiring Committee in AI - Chair, 2019
AI Rising Stars Symposium at USC (co-organizer)
PhD Admissions and Fellowship Awards Committee Member, 2019

Program Development: Academic

CAIS Summer Fellowship Program, Co-organizer and Mentor, 2018
Viterbi Ipodia Program, Lecture Speaker to visiting international students, 2018

Georgia Institute of Technology (College = School, School = Department)

University-level Committee Service

Georgia Tech Global Change Executive Committee Member, 2016-2017
Georgia Tech Quality Enhancement Plan (QEP) for Student Learning Committee Member, 2015

College Committee Service

GT President's Undergraduate Research Awards (PURA) applications Reviewer, 2015-2016
Graduate Admissions Committee Chair for CSE/CS-CSE MS/PhD program, 2014-2015
Graduate Admissions Committee Member for CSE/CS-CSE MS/PhD program, 2013-2014

School Committee Service

Chair, Qualifying Exam in CSE Algorithms, Fall 2014-Spring 2017
Member, CSE Chair's Advisory Committee, 2016-2017
Member, CSE Seminar Committee, 2014-2015, 2015-2016, 2016-2017
Member, CSE Faculty Hiring Committee 2015-2016, 2016-2017
PhD Recruiting Committee 2013-2014 (member), 2014-2015 (chair)

Program Development: Research

Member of Advisory Committee to Brook Beyer Institute of Sustainable Systems, 2015

Program Development: Academic

REU Site Faculty PI, 2017

Mentor for Bee-INSPIRED: Georgia Tech undergraduate summer experience program funded by USDA, 2016-2017

Co-Director and Mentor of Data Science For Social Good summer program, 2015-2017

Mentor for Data Science and Social Good summer program, 2014-2017

Mentor for CRUISE: Computing Research Undergraduate Intern Summer Experience summer program, 2014-2015

OUTREACH &
OTHER
EDUCATION

Viterbi VAST PK-12 Outreach STEM Spotlight Host (high school students visit campus), April 2019

North Hollywood High School Zoo Magnet Career Fair, organized a presentation on CAIS, delivered by PhD student Lily Xu, November 2018

LAUSD Local District East Family College and Career Fair, USC "Meet an Engineer" outreach activity, May 2018

EYH: Expanding Your Horizons (workshop for middle school girls), Cornell University, 2008/2009/2010