

# Zedong Peng

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CONTACT INFORMATION	Room E40-154, Operations Research Center 1 Amherst St, Cambridge, MA 02142	Email: <a href="mailto:zdpeng@mit.edu">zdpeng@mit.edu</a> Phone: 765-543-6310
RESEARCH INTERESTS	Computational optimization, optimization under uncertainty, and process system engineering.	
APPOINTMENT	<b>Massachusetts Institute of Technology</b> , Cambridge, MA September 2024-present Sloan School of Management Postdoctoral Associate Advisor: Prof. Haihao Lu  <b>Purdue University</b> , West Lafayette, IN August 2023-August 2024 Davidson School of Chemical Engineering Postdoctoral Associate Advisor: Prof. David E. Bernal Neira  <b>JD.com</b> , Beijing, China August 2021-July 2023 Applied Scientist & Doctoral Management Trainee Ads Bidding Team & Supply Chain Optimization (Y) Team	
EDUCATION	<b>Zhejiang University</b> , Hangzhou, China 2016-2021 Ph.D. in Control Science and Engineering, Graduation with distinction Thesis Title: Modeling and Optimization Algorithm of Planning and Scheduling in Petrochemical Industry Advisor: Prof. Gang Rong and Hongye Su  <b>Carnegie Mellon University</b> , Pittsburgh, PA 2019-2020 Visiting Student in Center for Advanced Process Decision-making, Carnegie Mellon University Advisor: Prof. Ignacio E. Grossmann  <b>Northeastern University</b> , Shenyang, China 2012-2016 B.S. in Automation, Graduation with distinction	
JOURNAL PUBLICATIONS	“Benchmarking quantum optimization for the maximum-cut problem on a superconducting quantum computer”, with Dupont, Maxime, Bhuvanesh Sundar, Bram Evert, David E. Bernal Neira, Stephen Jeffrey, and Mark J. Hodson, <i>Physical Review Applied</i> 23.1 (2025): 014045.  “Measure this, not that: Optimizing the cost and model-based information content of measurements”, with Jialu Wang, Ryan Hughes, Debangsu Bhattacharyya, David E. Bernal Neira, and Alexander W. Dowling, <i>Computers &amp; Chemical Engineering</i> 189 (2024): 108786.  “Alternative regularizations for Outer-Approximation algorithms for convex MINLP”, with Bernal, David E., Jan Kronqvist, and Ignacio E. Grossmann, <i>Journal of Global Optimization</i> 84.4 (2022): 807-842.  “Shale gas field development planning under production profile uncertainty”, with Can Li, Ignacio E. Grossmann, Kysang Kwon, Sukjoon Ko, Joohyun Shin, and Yiping Feng, <i>AIChE Journal</i> 68.1 (2022): e17439.  “Multi-period design and planning model of shale gas field development”, with Can Li, Ignacio E. Grossmann, Kysang Kwon, Sukjoon Ko, Joohyun Shin, and Yiping Feng, <i>AIChE Journal</i> 67.8 (2021): e17195.	

	<p>“A progressive hedging-based solution approach for integrated planning and scheduling problems under demand uncertainty”, with Yi Zhang, Yiping Feng, Gang Rong, and Hongye Su, <i>Industrial &amp; Engineering Chemistry Research</i> 58.32 (2019): 14880-14896.</p>	
REFEREED CONFERENCE PUBLICATIONS	<p>“Addressing Discrete Dynamic Optimization via a Logic-Based Discrete-Steepest Descent Algorithm”, with Albert Lee and David E. Bernal Neira, <i>2024 IEEE 63rd Conference on Decision and Control (CDC)</i>. IEEE, 2024.</p> <p>“Deep reinforcement learning approach for capacitated supply chain optimization under demand uncertainty”, with Yi Zhang, Yiping Feng, Tuchao Zhang, Zhengguang Wu, and Hongye Su, <i>2019 Chinese automation congress (CAC)</i>. IEEE, 2019.</p>	
PREPRINTS AND PAPERS UNDER REVIEWS	<p>“Enhanced Outer-Approximation Methods for MINLP via Presolve Convexification and Bound Tightening”, with Kaiyu Cao, Kevin C. Furman, Can Li, Ignacio E. Grossmann, and David E. Bernal Neira, <i>Major Revision, INFORMS Journal on Computing</i>.</p> <p>“cuPDLpx: A Further Enhanced GPU-Based First-Order Solver for Linear Programming”, with Haihao Lu, Zedong Peng, and Jinwen Yang, <i>Under Review, INFORMS Journal on Computing</i>.</p> <p>“Spectral Outer-Approximation Algorithms for Binary Semidefinite Problems”, with Daniel de Roux and David E. Bernal Neira, <i>arXiv preprint arXiv:2506.18265 (2025)</i>.</p> <p>“Hybrid Quantum Branch-and-Bound Method for Quadratic Unconstrained Binary Optimization”, with Daniel de Roux and David E. Bernal Neira, <i>arXiv preprint arXiv:2509.11040 (2025)</i>.</p> <p>“MPAX: Mathematical programming in JAX”, with Haihao Lu and Jinwen Yang, <i>arXiv preprint arXiv:2412.09734 (2024)</i>.</p>	
TEACHING EXPERIENCE	MIT	
	<ul style="list-style-type: none"> <li>TA, 15.071. The Analytics edge</li> </ul>	Fall 2025
	Zhejiang University	
	<ul style="list-style-type: none"> <li>TA, Operations Research</li> <li>TA, Data Mining and Data Fusion</li> </ul>	Fall 2016 Winter 2016
PRESENTATIONS	<p><i>MPAX: Mathematical Programming in JAX</i></p> <ul style="list-style-type: none"> <li>International Conference on Continuous Optimization (ICCOPT), July 2025</li> <li>MIP Workshop, June 2025</li> </ul> <p><i>MindtPy: The Mixed-Integer Nonlinear Decomposition Toolbox in Pyomo</i></p> <ul style="list-style-type: none"> <li>AIChE Annual Meeting, November 2023</li> <li>INFORMS Annual Meeting, October 2023</li> </ul> <p><i>Enhanced Outer-Approximation Methods for MINLP via Presolve Convexification and Bound Tightening</i></p> <ul style="list-style-type: none"> <li>European Symposium on Computer Aided Process Engineering (ESCAPE), June 2024</li> </ul> <p><i>Hybrid Quantum Branch-and-Bound Method for Quadratic Unconstrained Binary Optimization</i></p> <ul style="list-style-type: none"> <li>AIChE Annual Meeting, November 2024</li> <li>International Symposium on Mathematical Programming (ISMP), June 2024</li> </ul>	
MISCELLANEOUS	<p><b>Computing:</b> Python, Julia, C, C++</p> <p><b>Hobbies:</b> Swimming, Sailing, Hiking, Skiing</p>	