张在坤
ZHANG Zaikun

Ph.D., Professor

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Education

Sept. 2007–July 2012 Ph.D., computational mathematics, Institute of Computational Mathematics and Scientific/Engineering Computing (ICMSEC), Chinese Academy of Sciences, China, supervised by Prof. Ya-xiang Yuan, thesis: *On Derivative-free Optimization Methods*

May 2010–Aug. 2010 Visiting student, Institute for Computer Science, University of Bayreuth, Germany, visiting Prof. Klaus Schittkowski (funded by Alexander von Humboldt Foundation)

Sept. 2003–July 2007 B.Sc., computational mathematics, School of Mathematics, Jilin University, China

Positions

Jan. 2025–present Professor, School Mathematics, Sun Yat-sen University, China

April. 2016–Dec. 2024 Research Assistant Professor / Assistant Professor, Department of Applied Mathematics, Hong Kong Polytechnic University, Hong Kong, China

May 2014–Mar. 2016 Postdoc, CERFACS-IRIT join lab and IRIT-ENSEEIHT, Toulouse, France, in the group of Prof. Serge Gratton

Sept. 2012–Aug. 2014 Postdoc, Department of Mathematics, University of Coimbra, Portugal, in the group of Prof. Luís Nunes Vicente

Research Interests

Theory, algorithms, and software of mathematical optimization, especially derivative-free (zeroth-order) methods, randomized methods, large-scale problems, and noisy problems

Selected Publications

[1] X. Chen, Y. He, and Z. Zhang, Tight Error Bounds for the Sign-Constrained Stiefel Manifold, *SIAM J. Optim.*, 35:302–329, 2025

[2] T. M. Ragonneau and Z. Zhang, PDFO: A Cross-Platform Package for Powell's Derivative-Free Optimization Solvers, *Math. Program. Comput.*, 16:535–559, 2024

[3] S. Gratton, C. W. Royer, L. N. Vicente, and Z. Zhang, Complexity and Global Rates of Trust-Region Methods Based on Probabilistic Models, *IMA J. Numer. Anal.*, 38:1579–1597, 2018

[4] S. Gratton, C. W. Royer, L. N. Vicente, and Z. Zhang, Direct Search Based on Probabilistic Descent, *SIAM J. Optim.*, 25:1515–1541, 2015

[5] Z. Zhang, Sobolev Seminorm of Quadratic Functions With Applications to Derivative-Free Optimization, *Math. Program.*, 146:77–96, 2014

Software

[1] Z. Zhang, PRIMA: Reference Implementation for Powell's methods with Modernization and Amelioration, http://www.libprima.net

[2] T. M. Ragonneau and Z. Zhang, COBYQA: Constrained Optimization BY Quadratic Approximation (a package for solving general nonlinear optimization problems without using derivatives), http://www.cobyqa.com

[3] T. M. Ragonneau and Z. Zhang, PDFO (a package for solving general nonlinear optimization problems without using derivatives), http://www.pdfo.net

[4] Z. Zhang, NEWUOAs (a package for solving large-scale nonlinear optimization problems without using derivatives), http://www.sprima.net

Selected Awards and Recognitions

2025 Sun Yat-sen Scholar (逸仙优秀学者), awarded by Sun Yat-sen University

2024 ORSC Award for Applications of Operations Research (中国运筹学会科学技术奖"运筹应用奖"), awarded by the Operations Research Society of China

2023 Excellent Young Scientists Fund (Overseas), awarded by the National Natural Science Foundation of China

2019 Best Teacher Award, awarded by AMA, The Hong Kong Polytechnic University

2019 COAP Best Paper Prize, awarded by the editorial board of *Comput. Optim. Appl.*

External Grants as PI

Oct. 2024–Sept. 2027 "Non-Convergence Analysis of Randomized Derivative-Free Optimization Methods", awarded by the Hong Kong RGC under the General Research Fund (HKD $821,494)

Oct. 2023–Sept. 2026 "Scalable Derivative-Free Optimization Algorithms with Low-Dimensional Subspace Techniques", awarded by the Hong Kong RGC under the General Research Fund (HKD $827,607)

Jan. 2022–Dec. 2024 "Reliable Derivative-Free Optimization Algorithms Under Untamed Noise", awarded by the Hong Kong RGC under the General Research Fund (HKD $586,015)

Jan. 2021–Dec. 2023 "Derivative-Free Optimization with Space Decomposition, Coarse Space Correction, and Randomization", awarded by the Hong Kong RGC under the General Research Fund (HKD $599,861)

Jan. 2018–Dec. 2020 "Nonlinear Optimization Based on Inaccurate Information", awarded by the Hong Kong RGC under the Early Career Scheme (HKD $381,557)

Jan. 2017–Dec. 2018 "Space Decomposition Methods for Constrained Optimization with Engineering Applications", jointly awarded by the Hong Kong RGC and the Consulate General of France in Hong Kong under the PROCORE - France/Hong Kong Joint Research Scheme (HKD $36,000)

Ph.D. Students as Chief Supervisor

Aug. 2022–present C. Huang, funded by the Hong Kong Ph.D. Fellowship (HKD $1400,800), co-supervised by Prof. Xiaojun Chen

Sept. 2021–present H. Li, co-supervised by Prof. Xiaojun Chen

Sept. 2019–Aug. 2022 T. M. Ragonneau, funded by the Hong Kong Ph.D. Fellowship (HKD $997,600), co-supervised by Prof. Xiaojun Chen, thesis: *Model-Based Derivative-Free Optimization Methods and Software*

Remark The Hong Kong Ph.D. Fellowship (HKPFS) is a highly selective fellowship awarded by the Hong Kong government, selecting only 300 awardees per year worldwide.

Professional Services

2025–present Reviewer of *Mathematical Reviews*

2024–present Assistant Director of the Research Center for Intelligent Operations Research, The Hong Kong Polytechnic University

2023–present Council Member of the "Algorithms, Software, and Applications" branch of the Operations Research Society of China

2018–present Junior Council Member of the "Mathematical Programming" branch of the Operations Research Society of China

2017–present Member of the Organizing Committee of the International Conference on Numerical Optimization and Numerical Linear Algebra (a biennial conference organized by Prof. Ya-xiang Yuan)

2022–2023 Member of the 2023 SIAG/OPT Early Career Prize Selection Committee

2019–2020 Member of the Local Organizing Committee of SIAM Conference on Optimization 2020

2013 Member of the Organizing Committee of The Fourth International Conference on Continuous Optimization (2013, Lisbon, Portugal)