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PhD, Professor

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Education

- Sept. 2007–July 2012 PhD, 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 BSc, 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 joint 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 Papers

- [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, <https://www.libprima.net>
- [2] C. Huang, T. M. Ragonneau and Z. Zhang, OptiProfiler (a platform for benchmarking optimization solvers), <https://www.optprof.com>
- [3] T. M. Ragonneau and Z. Zhang, COBYQA: Constrained Optimization BY Quadratic Approximation (a package for solving general nonlinear optimization problems without using derivatives), <https://www.cobyqa.com>
- [4] T. M. Ragonneau and Z. Zhang, PDFO (a package for solving general nonlinear optimization problems without using derivatives), <https://www.pdfo.net>
- [5] Z. Zhang, NEWUOAs (a package for solving large-scale nonlinear optimization problems without using derivatives), <https://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“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

- Jan. 2026–Dec. 2029 “Derivative-Free Algorithms and Software for Large-Scale Constrained Optimization” awarded by the National Natural Science Foundation of China (NSFC) under the General Program of NSFC (国家自然科学基金面上项目), ref. 12571335, RMB 430,000
- Oct. 2024–Sept. 2027 “Non-Convergence Analysis of Randomized Derivative-Free Optimization Methods”, awarded by the Hong Kong RGC under the General Research Fund, ref. 15308624, HKD 821,494 (terminated in Jan. 2025 due to change of institution)
- 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, ref. 15308623, HKD 827,607 (terminated in Jan. 2025 due to change of institution)
- Oct. 2021–Sept. 2024 “Reliable Derivative-Free Optimization Algorithms Under Untamed Noise”, awarded by the Hong Kong RGC under the General Research Fund, ref. 15306621, HKD 586,015
- Oct. 2020–Sept. 2023 “Derivative-Free Optimization with Space Decomposition, Coarse Space Correction, and Randomization”, awarded by the Hong Kong RGC under the General Research Fund, ref. 15305420, HKD 599,861
- Jan. 2018–Dec. 2020 “Nonlinear Optimization Based on Inaccurate Information”, awarded by the Hong Kong RGC under the Early Career Scheme, ref. 25301217, HKD 381,557
- Jan. 2017–Dec. 2018 “Space Decomposition Methods for Constrained Optimization with Engineering Applications”, 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

Graduate Students as Chief Supervisor

Sept. 2025–present	Chengqing Lin, MPhil, Sun Yat-sen University
Sept. 2024–present	Zao Jiang, MPhil, Sun Yat-sen University
Sept. 2022–present	Cunxin Huang, PhD, The Hong Kong Polytechnic University, Hong Kong PhD Fellowship (ref. PF18-24698, HKD 1400,800), co-supervised with Prof. Xiaojun Chen
Sept. 2021–present	Haitian Li, PhD, The Hong Kong Polytechnic University, co-supervised with Prof. Xiaojun Chen
Sept. 2019–Aug. 2022	Tom M. Ragonneau, PhD, The Hong Kong Polytechnic University, Hong Kong PhD Fellowship (ref. PF21-56718, HKD 997,600), co-supervised with Prof. Xiaojun Chen, thesis: <i>Model-Based Derivative-Free Optimization Methods and Software</i> , working at Axians, France
Remark	The Hong Kong PhD Fellowship (HKPFS) is a highly selective fellowship awarded by the Hong Kong government, selecting only 300 awardees per year worldwide.

Professional Services

2025–present	Editorial Board Member of <i>Journal of Scientific Computational</i>
2025–present	Reviewer for <i>Mathematical Reviews</i> of American Mathematical Society
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 chaired by Prof. Yaxiang 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)