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## Basic Information

Year of birth 1985  
Place of birth Shandong, China

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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 Professor Ya-xiang Yuan, thesis: *On Derivative-free Optimization Methods*  
May 2010–Aug. 2010 Visiting student, Institute for Computer Science, University of Bayreuth, Germany, visiting Professor Klaus Schittkowski, funded by Alexander von Humboldt Foundation  
Sept. 2003–July 2007 B.Sc., computational mathematics, College of Mathematics, Jilin University, China

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## Positions

Apr. 2016–present Assistant Professor (Research Assistant Professor up until Jan. 2018), Department of Applied Mathematics, Hong Kong Polytechnic University, Hong Kong, China  
May 2014–Mar. 2016 Postdoc, CERFACS-IRIT join lab and IRIT-ENSEEIH, Toulouse, France, in the group of Professor Serge Gratton, funded by Foundation STAE and IRT Saint Exupéry  
Sept. 2012–Aug. 2014 Postdoc, Department of Mathematics, University of Coimbra, Portugal, in the group of Professor Luís Nunes Vicente

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## Research Interests

Theory and algorithms of mathematical optimization, especially randomized algorithms, derivative-free algorithms, noisy problems, and large-scale problems

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## Papers

- [1] S. Gratton, C. W. Royer, L. N. Vicente, Z. Zhang, Direct search based on probabilistic feasible descent for bound and linearly constrained problems, *Comput. Optim. Appl.*, 2019
- [2] X. Chen, C. T. Kelley, F. Xu, Z. Zhang, A smoothing direct search method for Monte Carlo-based bound constrained composite nonsmooth optimization, *SIAM J. Sci. Comput.*, 40(4): A2174–A2199, 2018
- [3] S. Gratton, C. W. Royer, L. N. Vicente, Z. Zhang, Complexity and global rates of trust-region methods based on probabilistic models, *IMA J. Numer. Anal.*, 38(3): 1579–1597, 2018
- [4] M. Dodangeh, L. N. Vicente, Z. Zhang, On the optimal order of worst case complexity of direct search, *Optim. Lett.*, 10(4): 699–708, 2016
- [5] S. Gratton, C. W. Royer, L. N. Vicente, Z. Zhang, Direct search based on probabilistic descent, *SIAM J. Optim.*, 25(3): 1515–1541, 2015
- [6] Z. Zhang, Sobolev seminorm of quadratic functions with applications to derivative-free optimization, *Math. Program.*, 146(1–2): 77–96, 2014

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## Works in Progress

[1] S. Gratton, L. N. Vicente, Z. Zhang, A space transformation framework for nonlinear optimization

[2] F. Delbos, S. Gratton, B. Pauwels, Z. Zhang, Direct search for noisy functions

[3] Z. Zhang, A derivative-free optimization algorithm with low-dimensional subspace techniques for large-scale problems

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## External Grants

Jan. 2018–Dec. 2020 Nonlinear Optimization Based on Inaccurate Information, PI, awarded by the Research Grants Council of Hong Kong under the Early Career Scheme

Jan. 2017–Dec. 2018 Space Decomposition Methods for Constrained Optimization with Engineering Applications, Hong Kong PI (French PI: S. Gratton; French Co-I: A. Gazaix), jointly awarded by the Research Grants Council of Hong Kong and the Consulate General of France in Hong Kong under the PROCORE - France/Hong Kong Joint Research Scheme

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## Teaching

- 2019 Best Teacher Award 2018/19, Department of Applied Mathematics, Hong Kong Polytechnic University
- 2018–present “Probability and Distributions for Risk Management”, Hong Kong Polytechnic University
- 2016–present “Basic Mathematics II: Calculus and Linear Algebra” (Subject Leader since 2018), Hong Kong Polytechnic University
- 2016–present “Mathematics II”, Hong Kong Polytechnic University
- 2015 “Concentration of Probability in Numerical Optimization”, ENSEEIHT, France

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## Refereeing

- 2012–present Mathematical Programming, SIAM Journal on Optimization, Mathematics of Operations Research, SIAM Journal on Numerical Analysis, ACM Transactions on Mathematical Software, Journal of Scientific Computing, *etc.*

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## Professional Services

- 2015–present Maintainer (with N. I. M. Gould) of Professor M. J. D. Powell’s optimization software: TOLMIN, COBYLA, UOBYQA, NEWUOA, BOBYQA, and LINCOA
- 2017, 2019 Member of the Organizing Committees of The 11th and 12th International Conference on Numerical Optimization and Numerical Linear Algebra (a biennial conference organized by Professor Ya-xiang Yuan)
- 2017 Co-chair (with X. Liu) of the invited workshop on “Big Data Analysis with Applications” at The Third International Conference on Engineering and Computational Mathematics (May 31–June 2, 2017, Hong Kong, China)
- 2016 Co-chair (with F. Rinaldi) of the cluster on “Derivative-free and Simulation-based Optimization” at The Fifth International Conference on Continuous Optimization (Aug. 6–11, 2016, Tokyo, Japan)
- 2013 Member of the Organizing Committee of The Fourth International Conference on Continuous Optimization (July 27–Aug. 1, 2013, Lisbon, Portugal)

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## Computer Skills

Linux; Fortran, C, MATLAB

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## Language Skills

Native Chinese, fluent English, intermediate French (B1–B2), elementary German (A1–A2)