







# Bin Gao

<https://www.gaobin.cc/>

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## Post-doctoral Fellow Université catholique de Louvain

### Education

- Sep 2014 – Jul 2019 | **Ph.D.** in applied mathematics, **University of Chinese Academy of Sciences**, Beijing, China  
Academy of Mathematics and System Science, Chinese Academy of Sciences  
*Advisor: Prof. Ya-xiang Yuan*
- Sep 2010 – Jun 2014 | **B.S.** in mathematics, **Sichuan University**, Chengdu, China

### Research Interests

- > Nonlinear Optimization
- > Orthogonality Constrained Optimization
- > Parallel/Distributed Computing
- > Machine Learning

My research interests include numerical methods for optimization problems with orthogonality constraints including linear and nonlinear eigenvalue problems, especially in electronic structure calculation. I'm also interested in machine learning and parallel/distributed optimization approaches which arise from various science and engineering areas.

### Publications

- Bin Gao**, Xin Liu and Ya-xiang Yuan, Parallelizable Algorithms for Optimization Problems with Orthogonality Constraints, *SIAM Journal on Scientific Computing*, 41-3(2019), A1949–A1983. ([link](#))
- Bin Gao**, Xin Liu, Xiaojun Chen and Ya-xiang Yuan, A New First-order Algorithmic Framework for Optimization Problems with Orthogonality Constraints, *SIAM Journal on Optimization*, 28-1(2018), 302–332. ([link](#))
- Bin Gao**, Xin Liu and Ya-xiang Yuan, First-order Algorithms for Optimization Problems with Orthogonality Constraints, *OR Transactions (in Chinese)*, 21-4 (2017), 57-68. ([link](#))
- Bin Gao**, Xin Liu, Xiaojun Chen and Ya-xiang Yuan, On the Łojasiewicz Exponent of the Quadratic Sphere Constrained Optimization Problem, arXiv:1611.08781. ([link](#))

### Presentations

- 2018.07 | The 23rd International Symposium on Mathematical Programming (ISMP 2018), Bordeaux, France  
2017.08 | The 11th International Conference on Numerical Optimization and Numerical Linear Algebra, Yinchuan, China  
2016.06 | The 11th East Asia SIAM Conference (EASIAM2016), Macao SAR, China

### Academic Visits

- 2019.07.20-08.18 | University of Macau | Prof. Guanghui Hu

### Honors & Awards

- 2018 | Best Student Paper Award of CSIAM 2018 (<15%)  
2018 | CAS Special Prize of President Scholarship for Postgraduate Student (<1%)  
2017 | National Scholarship for Doctoral Student (<5%)  
2016 | Honor Student Award of International Workshop on Modern Optimization and Application

## ☰ Skills

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**Programming Languages :** C/C++, Python, SQL, Matlab, Mathematica,  $\LaTeX$   
**Machine Learning :** Tensorflow  
**High Performance Computing :** Linux, Shell  
**Parallel/Distributed Computing :** OpenMP, MPI

(last update : 4 Sep. 2019)