Jianwei Xiao

Contact Information

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Research Interests

Randomized Matrix Algorithms, Scientific Computing, Machine Learning.

Education

Ph.D. Applied Mathematics 08/2013 - 12/2018
Advisor: Prof. Ming Gu
University of California, Berkeley
Cumulative GPA: 3.94/4.0

B.S. Mathematics 08/2009 - 06/2013
University of Science and Technology of China (USTC)
Cumulative GPA: 4.03/4.3 (92.77/100), Rank: 1/95
Major Field GPA: 4.21/4.3 (95.56/100), Rank: 1/95

Experiences

Facebook, Inc. 05/2018 - 08/2018
Research Intern, Caffe2, Applied Machine Learning *Menlo Park, CA*
Manager: Mr. Marat Dukhan

- Developed a library for GPU computation using OpenGL ES 3.0 fragment shaders.
- Implemented convolutional neural network inference on Android devices.
- Performed a series of benchmarks to reveal the limits of hardware and software architecture.
- Wrote a detailed tech report about the observations and presented it in the group meeting.

University of California, Berkeley 08/2013 - present
Graduate Student Instructor *Berkeley, CA*

- Conducted discussion sections, as accompaniment to lectures.

University of California, Berkeley 08/2015 - 08/2017
Summer Graduate Student Lecturer *Berkeley, CA*

- Acted as the primary instructor, gave lectures, and conducted discussion sections.

Publications

Spectrum-Revealing Cholesky Factorization for Kernel Methods
Jianwei Xiao, Ming Gu
IEEE International Conference on Data Mining (ICDM), Barcelona, Spain, 2016
Acceptance rate: 19.6%

Fast Parallel Randomized QR with Column Pivoting Algorithms for Reliable Low-rank Matrix Approximations
Jianwei Xiao, Ming Gu, Julien Langou
24th IEEE International Conference on High Performance Computing, Data, and Analytics (HIPC), Jaipur, India, 2017
Acceptance rate: 22.8%
Awarded the Best Paper Prize

Randomized Complete Pivoting for Solving Symmetric Indefinite Linear Systems

Yuehua Feng, **Jianwei Xiao**, Ming Gu
SIAM Journal on Matrix Analysis and Applications (SIMAX)

Spatial-Homogeneity of Stable Solutions of Almost-Periodic Parabolic Equations with Concave Nonlinearity
Yi Wang, **Jianwei Xiao**, Dun Zhou
Proceedings of the American Mathematical Society

Preprints

Low-Rank Matrix Approximations with Flip-Flop Spectrum-Revealing QR Factorization
Yuehua Feng, **Jianwei Xiao**, Ming Gu

Selected Talks

Randomized QR Factorization with Column Pivoting
Scientific and Statistical Computing Seminar, *The University of Chicago* 03/2017

Reliable Randomized Spectrum Revealing Matrix Factorizations
SIAM Conference on Computational Science and Engineering, *Atalanta* 03/2017

Randomized QR Factorization with Column Pivoting
ICME Linear Algebra and Optimization Seminar, *Stanford University* 02/2017

Spectrum-Revealing Cholesky Factorization for Kernel Methods
IEEE International Conference on Data Mining (ICDM), *Barcelona, Spain* 12/2016

On Reliability of Randomized QR Factorization with Column Pivoting
Matrix Computations and Scientific Computing Seminar, *UC Berkeley* 10/2016

Spectrum Revealing Cholesky Factorizations
Matrix Computations and Scientific Computing Seminar, *UC Berkeley* 12/2015

Awards & Honors

Outstanding Graduate Student Instructor Award, *UC Berkeley* 2017 - 2018
James H. Simons Fellowship, *UC Berkeley* 2017
Guo Moruo Scholarship (top 1%), *USTC* 2012
Shing-Tung Yau College Student Mathematics Contests: Silver Medal in Group Contests, *China* 2012
Honorable Mention of Shing-Tung Yau College Student Mathematics Contests in Applied Mathematics and Computational Mathematics, *China* 2012
The Mathematical Contest in Modeling: Meritorious Winner, *United States* 2012
National Scholarship (top 2%), *China* 2011
Outstanding Undergraduate Scholarship: First Grade (top 3%), *USTC* 2010

Skills

Computer Skills:
Proficiency in C, OpenGL ES, Python, Fortran
Proficiency in LAPACK, ScaLAPACK, Matlab, LaTeX
Experience with C++, R, OpenMP, CUDA

Language Skills:
Native proficiency in Chinese (Mandarin). Proficiency in English.