

# XIN YE

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## POSITION

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### Postdoctoral Researcher

Sep. 2018–Jul. 2019

Department of Computer Science and Engineering

University of Minnesota, Minneapolis, MN.

Mentor: Yousef Saad.

## EDUCATION

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### Ph.D. in Applied Mathematics

Aug. 2013–Aug. 2018

Purdue University, West Lafayette, IN, USA.

Advisor: Jianlin Xia.

### B.S. in Applied Mathematics

Sep. 2009–Jun. 2013

### B.S. in Economics

Wuhan University, Wuhan, Hubei, China.

## RESEARCH INTERESTS

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- Fast direct solvers, hierarchical matrices.
- Randomized numerical linear algebra, low-rank approximation.
- Filtering techniques for eigenvalue problems and preconditioning.
- High performance computing.

## PUBLICATIONS AND PREPRINTS

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### Journal Articles

- X. Ye, J. Xia, R. H. Chan, S. Cauley, and V. Balakrishnan, *A fast contour-integral eigensolver for non-Hermitian matrices*, SIAM J. Matrix Anal. Appl., 38 (2017), pp. 1268–1297.
- J. Xia, Z. Li, and X. Ye, *Effective matrix-free preconditioning for the augmented immersed interface method*, J. Comput. Phys., 303 (2015), pp. 295–312.

### Preprint

- X. Ye, J. Xia, and L. Ying, *Analytical compression via proxy point selection and contour integration*, submitted.
- X. Ye, Y. Xi, and Y. Saad, *Complex polynomial filter for linear systems*, to be submitted.
- J. Xia, X. Ye, and M. Gu, *Hyperfast rank-structured approximations of Toeplitz matrices*, preprint.
- R. H. Chan, J. Xia, and X. Ye, *Fast direct solvers for linear third-order differential equations*, preprint.

## AWARDS

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- Purdue Research Foundation Grant

Jun. 2017–Jun. 2018

- Department Student Travel Fund Oct. 2015 & Feb. 2017
- SIAM Student Travel Award to attend 2016 SIAM Annual Meeting Mar. 2016
- Wuhan University Scholarship for Outstanding Students Oct. 2010 & Oct. 2011
- Wuhan University Scholarship for Outstanding Freshmen Sep. 2009

## TALKS AND PRESENTATIONS

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### Invited Presentations

- *A Fast Contour-integral Eigensolver and the Approximation Accuracy*  
SIAM CSE17 Feb. 2017
- *A Contour-integral Based Structured Eigensolver for Non-Hermitian Matrices*  
SIAM AN16 Jul. 2016

### Contributed Talks

- *Complex Polynomial Preconditioner for Indefinite Systems*  
Preconditioning 2019 Jul. 2019
- *Kernel Matrix Compression with Proxy Points*  
2018 Conference on Fast Direct Solvers Nov. 2018
- *A Fast Eigensolver for Structured Matrices*  
SIAM LA15 Oct. 2015

## PROFESSIONAL ACTIVITIES

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### Journal Reviewer

- Applied Numerical Mathematics
- Journal of Parallel and Distributed Computing
- SIAM Journal on Scientific Computing

### Organizer

- Mini-symposium *Recent Advancements in Numerical Methods for Eigenvalue Computation* at ILAS 2017, co-organized with J. Vogel. Jul. 2017

### Mentor

- AWM Purdue Chapter mentoring program Feb. 2016–Oct. 2016

## ATTENDED AND UPCOMING CONFERENCES

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- Preconditioning 2019, Minneapolis, MN. Jul. 1–3, 2019
- 2018 Conference on Fast Direct Solvers, Purdue CCAM, West Lafayette, IN. Nov. 9–11, 2018
- Walter Gautschi's 90th birthday conference, Purdue University, West Lafayette, IN. Mar. 30–31, 2018
- 15th Copper Mountain Conference on Iterative Methods, Copper Mountain, CO. Mar. 25–30, 2018
- 2017 Meeting of the International Linear Algebra Society, Ames, IA. Jul. 24–28, 2017
- Computational Science and Engineering Student Conference, West Lafayette, IN. Apr. 14, 2017

- SIAM Conference on Computational Science and Engineering, Atlanta, GA. Feb. 27–Mar. 3, 2017
- Workshop on Fast Direct Solvers, Purdue CCAM, West Lafayette, IN. Nov. 12–13, 2016
- 2016 SIAM Annual Meeting, Boston, MA. Jul. 11–15, 2016
- Computational Science and Engineering Student Conference, West Lafayette, IN. Apr. 8, 2016
- SIAM Conference on Applied Linear Algebra, Atlanta, GA. Oct. 26–30, 2015
- Multi-resolution Interactions Workshop, Duke University, Durham, NC. Aug. 28–29, 2015

## TEACHING

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### At Purdue

- Analytic Geometry and Calculus I (MA 165), Recitationer, Fall 2016.
- Introduction to Discrete Mathematics (MA 375), Grader, Summer 2015.
- Linear Algebra with Applications (MA 511), Grader, Fall 2014.
- Linear Algebra (MA 265), Grader, Spring 2014.
- Introduction to Real Analysis (MA 341), Grader, Fall 2013.

## SKILLS

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| <b>Languages</b>        | Mandarin Chinese (native), English (fluent) |
| <b>Computing skills</b> | Matlab, Fortran, MPI, OpanACC, C, C++       |