

ZIYI (FRANCIS) YIN

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EDUCATION

Georgia Institute of Technology

Ph.D. in Computational Science and Engineering

Advisor: [Prof. Felix J. Herrmann](#), GPA: 4.00/4.00

Atlanta, GA

Aug 2019 - Present

Emory University

B.S. in Mathematics and Computer Science (summa cum laude)

Advisor: [Prof. James G. Nagy](#), GPA: 3.98/4.00, Major GPA: 4.00/4.00

Atlanta, GA

Aug 2017 - May 2019

Beihang University

Major: Mathematics

Beijing, China

Sep 2015 - Jul 2017

RESEARCH INTERESTS

Machine Learning, Scientific Computing, PDE-constrained Optimization, Inverse Problems

PUBLICATIONS

[1] Ziyi Yin, Rafael Orozco, Philipp Witte, et al. “Extended source imaging, a unifying framework for seismic & medical imaging”. Accepted in: *SEG Technical Program Expanded Abstracts 2020*. Apr. 2020. url: <https://arxiv.org/abs/2004.07389>.

RESEARCH EXPERIENCE

Georgia Institute of Technology

Graduate Research Assistant

• Advisor: [Prof. Felix J. Herrmann](#)

- Conduct research in SLIM ([Seismic Laboratory for Imaging and Modeling](#)) group on deep learning applications of wave-equation based imaging, such as seismic and photoacoustic imaging
- Design loop-unrolled algorithms for full-waveform inversion problems, combine Krylov-based GMRES solver with convolutional neural network to learn iterative reconstructions
- Focus on extended source imaging with variable projection methods; unroll iterative algorithms for source estimation then generate short-wavelength images by automatic differentiation through iteration histories
- Work on sparsity promoting LS-RTM with Curvelet thresholding; incorporate on-the-fly temporal source estimation and extended source imaging to eliminate multiples in the ocean bottom reflections

Atlanta, GA

Aug 2019 - Present

Pactera Technology International Ltd.

Machine Learning Intern

- Engaged in research in Natural Language Processing in the field of machine learning and deep learning models (neural network/ensemble learning)
- Developed highly scalable classifiers according to TensorFlow and BERT to improve the performance of chat bots in a daily communication setting
- Improved the classifiers gradually to extract more ambiguous intents from users' texts in various cases

Dalian, China

May 2019 - Aug 2019

Emory University

Honors Research

• Advisor: [Prof. James G. Nagy](#)

- Awarded Highest Honors (Summa Cum Laude) in Applied Mathematics and Statistics
- Conducted individual research on numerical solutions to large-scale ill-posed inverse problems, and applications in X-ray tomography imaging
- Derived Regularized Conjugate Gradient Method in MATLAB, which integrates the image segmentation

Atlanta, GA

Jul 2018 - Apr 2019

result as a prior and solves the Tikhonov-regularized least squares problem for image reconstruction

- Wrote honor thesis - [Edge Detection and Enriched Subspaces](#), defended thesis against thesis examination committee and published thesis in Emory Electronic Theses and Dissertations (ETD) Repository

LEADERSHIP EXPERIENCE

Society of Exploration Geophysicists

Atlanta, GA

Secretary, Georgia Tech Student Chapter

Nov 2019 - Present

- Hold bi-weekly meetings within Schools of Computational Science and Engineering, School of Earth and Atmospheric Sciences, School of Electrical and Computer Engineering
- Invite senior students and outstanding professors to share research projects and give academic talks
- Organize workshops to invite senior students and career advisors to share their internship experiences, help students revise resume and introduce industry relationships
- Make future plans about field trips, SEG event participation, Atlanta science festival and fundings

EPASS Peer Tutoring Program, Emory University

Atlanta, GA

Teaching Assistant

May 2018 - May 2019

- Conducted academic sessions for math students up to 6 hours each week in person
- Explained lectures and course materials; helped students with problem sets, projects and exams

Office of Undergraduate Studies, Emory University

Atlanta, GA

Academic Fellow

Aug 2018 - May 2019

- Co-conducted orientations for Emory Class of 2022 freshmen, and co-hosted info sessions
- Mentored eight international students throughout freshman year regarding both academics and lives

HONORS AND AWARDS

- SEG/Chevron Student Leadership Symposium travel grant
- Highest Honors (summa cum laude), Emory University
- Phi Beta Kappa Honor Society Membership
- Dean's List, Emory University

Jun 2020

May 2019

Apr 2019

Aug 2017 - May 2019

SKILLS

- Programming: Python, MATLAB, Julia, Java, C/C++, SQL, PHP, R, Assembly, L^AT_EX
- Language: English (Proficient), Chinese (Native), German (Elementary)