ZIYI (FRANCIS) YIN

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EDUCATION

Georgia Institute of Technology　　　　　　　　　　　　　　　　　　　Atlanta, GA
Ph.D. in Computational Science and Engineering　　　　　　　　　　　*Aug 2019 - Present*
Advisor: Prof. Felix J. Herrmann, GPA: 4.00/4.00

Emory University　　　　　　　　　　　　　　　　　　　　　　　　　Atlanta, GA
B.S. in Mathematics and Computer Science (summa cum laude)　　　　*Aug 2017 - May 2019*
Advisor: Prof. James G. Nagy, GPA: 3.98/4.00, Major GPA: 4.00/4.00

Beihang University　　　　　　　　　　　　　　　　　　　　　　　Beijing, China
Major: Mathematics　　　　　　　　　　　　　　　　　　　　　　　*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　　　　　　　　　　　　　　　　　　　Atlanta, GA
Graduate Research Assistant　　　　　　　　　　　　　　　　　　　*Aug 2019 - Present*
- 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

Pactera Technology International Ltd.　　　　　　　　　　　　　　　　Dalian, China
Machine Learning Intern　　　　　　　　　　　　　　　　　　　　*May 2019 - Aug 2019*
- 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 TenserFlow 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

Emory University　　　　　　　　　　　　　　　　　　　　　　　　　Atlanta, GA
Honors Research　　　　　　　　　　　　　　　　　　　　　　　　*Jul 2018 - Apr 2019*
- 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

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

TEACHING EXPERIENCE

Georgia Institute of Technology Atlanta, GA
Head Teaching Assistant for CSE/MATH 6644 Iterative Methods for Systems of Equations, *Fall 2020*

Emory University Atlanta, GA
EPASS Peer Tutor for MATH 250/361/362: Foundation of Mathematics, Probability and Statistics I & II, *Summer 2018, Fall 2018, Spring 2019*

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

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 *Jun 2020*
• Highest Honors (summa cum laude), Emory University *May 2019*
• Phi Beta Kappa Honor Society Membership *Apr 2019*
• Dean's List, Emory University *Aug 2017 - May 2019*

SKILLS

• Programming: Python, MATLAB, Julia, Java, C/C++, SQL, PHP, R, Assembly, LaTeX
• Language: English (Proficient), Chinese (Native), German (Elementary)