ZIYI (FRANCIS) YIN

CODA S1363C, 756 West Peachtree St NW, Atlanta, GA 30308 | ziyi.yin@gatech.edu | ziyiyin97.github.io

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". 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

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   *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)