

Zach Stoebner

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Overview

PhD researcher working on provably efficient, scalable, and robust algorithms for large-scale inverse problems, with a focus on **machine learning, optimization, and probability**.

Education

University of Texas at Austin

Austin, TX

PhD in Electrical & Computer Engineering (advised by Prof. Jon Tamir)

2028 (Expected)

- Topic: Theory and algorithms for operator learning in large-scale inverse problems
- Coursework: Convex Optimization, Probability & Stochastic Processes, Real Analysis, Large-Scale Optimization, Advanced Probability, Tensor Methods

Vanderbilt University

Nashville, TN

BS in Computer Science & Neuroscience, Minor in Applied Mathematics

2021

MS in Computer Science (advised by Prof. Ipek Oguz)

2022

- Thesis: Deep learning for video segmentation
- Coursework: Statistical ML, Systems Theory, Computational Game Theory, Intelligent Systems & Robotics

Work

Adobe

Bay Area, CA

AI/ML Research Intern, Firefly

Summer 2025

- Developed state-space models for embedding compression in long-form text-to-image generation.
- Won the Firefly intern research showcase.

Research

PUBLICATIONS

- [1] "Randomized variable-metric monotone operator learning for linear inverse problems", **ZS**, Tao Hong, Jonathan I. Tamir. (*Manuscript in preparation*) [Poster]
 - Developed a variable-metric forward-backward splitting framework for monotone operator learning.
 - Designed a low-rank second-order method using randomized Nyström approximation.
 - Proved high-probability stability, robustness, and contraction guarantees via random matrix theory.
- [2] "INFusion: diffusion regularized implicit neural representations for 2D and 3D accelerated MRI reconstruction", Yamin Arefeen, Brett Levac, **ZS**, Jonathan I Tamir. *IEEE-Asilomar* (2024). [DOI][arXiv]
- [3] "Reducing malware analysis overhead with coverings", Michael Sandborn, **ZS**, Westley Weimer, Stephanie Forrest, Ryan Dougherty, Jules White, Kevin Leach. *IEEE-TDSC* (2023). [DOI][Code]
- [4] "Comprehensive shape analysis of the cortex in Huntington's disease", **ZS**, Kilian Hett, Ilwoo Lyu, Hans Johnson, Jane S. Paulsen, Jeffrey Long, Ipek Oguz. *Human Brain Mapping* (2023). [DOI][Code]
- [5] "Segmentation of kidney stones in endoscopic video feeds", **ZS**, Daiwei Lu, Seok Hee Hong, Nicholas L. Kavoussi, and Ipek Oguz. *SPIE Medical Imaging: Image Processing* (2022). [DOI][arXiv]

POSTERS

"Jointly solving for system identification and signal reconstruction with implicit neural representations", **ZS**, Jonathan I. Tamir. {6G@UT, Oden SciML Workshop} (2024) [Code][Poster]

PATENTS

"Systems and Methods for Navigation and Identification during Endoscopic Surgery", Nicholas L. Kavoussi, Ipek Oguz, Jie Ying Wu, **ZS**, Daiwei Lu, Ayberk Acar.
U.S. Patent Application No. 18/622,134.

Accolades

- 2026-2027 **Tolbert Endowed Fellowship**, University of Texas at Austin
- 2022-2026 **Cockrell Engineering Doctoral Fellowship**, University of Texas at Austin
- 2021 **Research Honors in Computer Science**, Vanderbilt University
- 2017-2021 **Dean's List**, Vanderbilt University

Skills

Programming: Python, C++, C

Tools: PyTorch, Git, Linux

Languages: English (native), Portuguese (fluent), Spanish (advanced), French (basic)

Hobbies: bouldering, lifting, running, gaming