

# Zachary Stoebner

✉ zachary.a.stoebner@vanderbilt.edu | 🏠 zstoebs.github.io

## Research Overview

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I engineer new methods to process high-dimensional signals with practical benefit in mind, particularly in magnetic resonance imaging. My research spans **signal processing**, **deep learning**, and **machine perception** to solve challenging problems in autonomous systems. Generally, my interests are in AI/ML & neuroscience, intelligent systems & robotics, and optimization & control.

## Education

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### University of Texas at Austin

PHD IN ELECTRICAL & COMPUTER ENGINEERING

- Advisor: Prof. Jon Tamir
- Focus: *Computational sensing and imaging*

Austin, TX

August 2022 - ??

### Vanderbilt University

MS IN COMPUTER SCIENCE

- Advisor: Prof. Ipek Oguz
- Thesis: *A deep learning-enabled automatic segmentation system for surgical endoscopy*

Nashville, TN

August 2021 - May 2022

### Vanderbilt University

BS WITH HONORS IN COMPUTER SCIENCE & NEUROSCIENCE

- Minor in Applied Mathematics
- Advisor: Prof. Ipek Oguz
- Research: *ML for brain MRI: (1) GAN-based harmonization and (2) cortical shape analysis using linear-mixed models*

Nashville, TN

August 2017 - May 2021

## Peer-Reviewed Publications

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### CONFERENCE

**Zachary A. Stoebner**, Daiwei Lu, Seok Hee Hong, Nicholas L. Kavoussi, and Ipek Oguz, "Segmentation of kidney stones in endoscopic video feeds", Proc. SPIE 12032, Medical Imaging 2022: Image Processing, 120323G (4 April 2022).  
[SPIE] [arXiv]

### IN REVIEW

**Zachary A. Stoebner**, Kilian Hett, Ilwoo Lyu, Hans Johnson, Jane S. Paulsen, Jeffrey Long, Ipek Oguz, "Comprehensive shape analysis of the cortex in Huntington's disease". Human Brain Mapping. 2022.

## Honors & Awards

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2022 Cockrell Engineering Fellowship, University of Texas at Austin

\$ 36,000

## Presentations

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### POSTERS

\* *presenting author*

**Zachary A. Stoebner**\*, Daiwei Lu, Seok Hee Hong, Nicholas L. Kavoussi, and Ipek Oguz. "Segmentation of kidney stones in endoscopic video feeds". Vanderbilt Institute of Surgery & Engineering Symposium. 2021. Nashville, TN.

Nicholas L. Kavoussi\*, **Zachary A. Stoebner**, Daiwei Lu, Ipek Oguz. "Automated Method of Tracking and Segmenting Kidney Stones During Ureteroscopy Using Computer Vision Techniques". Engineering & Urology Society Meeting. 2021. Las Vegas, NV.

## TALKS

Fall 2021 **ML for Course and Research Projects**, CS 4262 - Foundations of ML

*Vanderbilt*

## Teaching Experience

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### ASSISTANT

Spring 2022 **Projects in ML**, CS 3892

*Vanderbilt*

Fall 2021 **Artificial Intelligence**, CS 4260

*Vanderbilt*

Spring 2021 **Deep Learning**, CS 3891

*Vanderbilt*

Fall 2020 **Operating Systems**, CS 3281

*Vanderbilt*

Spring 2020 **Discrete Structures**, CS 2212

*Vanderbilt*

Fall 2019 **Discrete Structures**, CS 2212

*Vanderbilt*

## Service & Outreach

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2021-2022 **Community Outreach Chair**, Out in Engineering

*Vanderbilt*

2021-2022 **Peer Reviewer, Section Leader, & Graduate Mentor**, Undergraduate Research Journal

*Vanderbilt*

2019-2021 **Mentor & VP of Communications**, Engineering Design Studio

*Vanderbilt*

## Skills

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**Programming:** Python, C++, C, MATLAB, R, JavaScript,  $\text{\LaTeX}$

**Engineering:** soldering, CAD, 3D printing

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

**Other:** kū & tanka poet, nature photographer, weightlifter, trail runner