

# Zachary Stoebner

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## Research Overview

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*My research spans image & signal processing, deep learning, and sensing to solve challenging problems in computer vision and autonomous systems with direct practical benefit. I have historically worked on engineering new methods to process high-dimensional signals, particularly in magnetic resonance imaging. Generally, I am curious about 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-based 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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### PUBLISHED

**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).

### 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". Brain. 2022.

## Honors and 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.

## INVITED TALKS

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

Vanderbilt

## Teaching Experience

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### TEACHING 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

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

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

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