

Yongyi Zhao

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Education

Rice University

Master of Science in Electrical and Computer Engineering

Aug 2018 – Mar 2021

Doctor of Philosophy in Electrical and Computer Engineering

Aug 2018 – Present

Adviser: Professor Ashok Veeraraghavan

Houston, TX

Carnegie Mellon University

Aug 2014 – Dec 2017

Bachelor of Science in Electrical and Computer Engineering

Pittsburgh, PA

With University Honors; **GPA: 3.93/4.00**

Research Experience

Rice University: Computational Imaging Lab

Aug 2018 – Present

Houston, TX

- ❖ **Adviser:** Prof. Ashok Veeraraghavan
- ❖ Developing techniques for minimally-invasive imaging of neural activity
- ❖ Developing algorithm to accelerate simulations of photon propagation through biological tissue

Carnegie Mellon University: Image Science Lab

Jan 2017 – May 2018

Pittsburgh, PA

- ❖ **Adviser:** Prof. Aswin Sankaranarayanan
- ❖ Researched, developed, and analyzed accuracy of computational camera models
- ❖ Developed prototype of spherical, lensless imaging device

Northeastern University: Gas Sensing Properties of Functionalized Graphene

Aug 2012 – Jun 2013

Boston, MA

- ❖ **Adviser:** Prof. Swastik Kar
- ❖ Researched applications of graphene in vapor detection
- ❖ Developed gas sensing probes, using graphene, for detection of acetone

Publications & Presentations

Kim H. K., **Zhao Y.**, et al. Ultrafast and Ultrahigh-Resolution Diffuse Optical Tomography for Brain Imaging with Sensitivity Equation based Noniterative Sparse Optical Reconstruction (SENSOR). *Journal of Quantitative Spectroscopy and Radiative Transfer*. (2021).

Zhao Y., Raghuram A., et al. High Resolution, Deep Imaging Using Confocal Time-of-flight Diffuse Optical Tomography. *IEEE Transactions on Pattern Analysis and Machine Intelligence*. (2021).

Notable Paper: ICCP Conference Best-Paper Runner-Up

Awards & Honors

National Library of Medicine Fellowship in Bioinformatics and Data Science

Jan 2021 – Dec 2022

- ❖ 2-year fellowship; \$25,320 stipend and partial tuition support

John Clark Jr. Fellowship Award

Aug 2018

- ❖ Fellowship from Rice University, supporting first-year graduate studies

Frank J. Marshall Scholar Award

May 2018

- ❖ Annual award for one graduating CMU ECE undergraduate for academics and research

Andrew Carnegie Society (ACS) Scholar

Sep 2017

- ❖ Recognized as one of 40 students for academics, involvement and leadership

Eta Kappa Nu, IEEE Honor Society	Nov 2017
Tau Beta Pi Engineering Honor Society	Nov 2016
CMU Summer Undergraduate Research Fellowship	May 2015

Projects

Autonomous Electric Vehicle (Capstone Project, 3-Person Group)	Aug 2017 - Dec 2017
❖ Implemented robot that could navigate obstacle course of boxes using purely image processing	
❖ Programmed RasPi interface to collect camera data and perform movements on encoded DC motors	
Cartoon Interpolation Animator	Dec 2016
❖ Animate 2-D image using interpolation: manipulate using cage, skeleton, spline interpolation	
❖ Implemented program in Python, using python image library for speed optimization and user interface	
Racing Simulation using OpenCV Motion Detection	April 2015
❖ Presented as one of top 15 projects (of ~400 students) for 15-112 Spring 2015 Course	
❖ Used OpenCV library to create racing game that could read hand and feet motion of user as controls	

Work Experience

Teaching Assistant (TA), 15-112 at Carnegie Mellon University	Aug 2016 – Dec 2016
❖ Lead recitation of 20 students, weekly lecture to deepen students' understanding	Jan 2018 – May 2018
❖ Perform course logistics: grading, tutoring at office hours, leading review sessions	Pittsburgh, PA
Teaching Assistant (TA), 18-240 at Carnegie Mellon University	Aug 2017 – Dec 2017
❖ Lead lab section of 30 students, weekly project to deepen students' understanding	Pittsburgh, PA
❖ Perform course-support tasks: grading, tutoring at office hours, leading review sessions	
Software Development Engineer Intern at Amazon.com	May 2017 – Aug 2017
❖ Working on Amazon AWS, Elastic Compute Cloud Team	Seattle, WA
❖ Designing and implementing container service	

Skills

Programming/Computing:
❖ Strong: Python, Matlab, C
❖ Proficient: C++, Matlab, Linux
❖ Limited: Version Control (Git), Cuda, Qt, SystemVerilog

Volunteer Activities

Mentor, PATHS-UP Research Experience for Teachers (RET)	May 2019 – July 2019
❖ Mentored 6 teachers who taught in underrepresented communities of Houston Independent School District	
❖ Designed a curriculum to teach RETs the remote photoplethysmography algorithm	
Mentor, Higher Achievement	Oct 2014 – May 2017
❖ Tutored group of 2-5 middle school students in project design and scientific method	
❖ Created and implemented projects to teach programming and experimental design	