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	**Mar 2021 – 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**
- ❖ **Adviser:** Prof. Ashok Veeraraghavan   **Houston, TX**
- ❖ 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**
- ❖ **Adviser:** Prof. Aswin Sankaranarayanan   **Pittsburgh, PA**
- ❖ Researched, developed, and analyzed accuracy of computational camera models
- ❖ Developed prototype of spherical, lensless imaging device

Publications & Presentations

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**

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).

Dave A. **Zhao Y.** and Veeraraghavan A. "PANDORA: Polarization-Aided Neural Decomposition Of Radiance." *European Conference on Computer Vision (ECCV).* (2022).

Zhao Y., Raghuram A., et al. "Unrolled-DOT: An Interpretable Deep Network for Diffuse Optical Tomography." (Under Review)

[*]Indicates authors contributed equally

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 (including PyTorch library), Matlab
   ❖ **Proficient:** C/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