Yongyi Zhao

yongyi@rice.edu | yongyizhao.com

Education

Rice University	**May 2024** (Expected)
Doctor of Philosophy in Electrical and Computer Engineering	**Houston, TX**
Carnegie Mellon University	**Aug 2014 – Dec 2017**
Bachelor of Science in Electrical and Computer Engineering	**Pittsburgh, PA**
Overall GPA: 3.93/4.00	

Research Experience

Carnegie Mellon University: Image Science Lab — **Jan 2017 – Present**, **Pittsburgh, PA**
- ❖ **Supervisor:** Prof. Aswin Sankaranarayanan
- ❖ Researching, developing, and analyzing accuracy of computational camera models
- ❖ Developing prototype of spherical imaging device

Carnegie Mellon University: Inorganic Nanoparticles for Chiral Separation — **Oct 2014 – Dec 2017**, **Pittsburgh, PA**
- ❖ **Supervisor:** Dr. Nisha Shukla
- ❖ Synthesize and characterize gold nanoparticles in chiral sensing/separation
- ❖ Establish procedure for reproducible production of faceted gold nanoparticles

Stony Brook University: Antibacterial Applications of Graphene/Polymer Blend — **Jun – Aug 2013**, **Stony Brook, NY**
- ❖ **Supervisor:** Prof. Miriam Rafailovich & Prof. John Jerome
- ❖ Established methodology for synthesizing antibacterial polymer structures
- ❖ Synthesized material that could puncture microbial films

Northeastern University: Gas Sensing Properties of Functionalized Graphene — **Aug 2012 – Jun 2013**, **Boston, MA**
- ❖ **Supervisor:** Prof. Swastik Kar
- ❖ Researched applications of graphene in vapor detection
- ❖ Developed gas sensing probes, using graphene, for detection of acetone

Northeastern University: Genetic Regulation of Cell Migration in *C. elegans* — **Jun – Aug 2012**, **Boston, MA**
- ❖ **Supervisor:** Prof. Erin Cram
- ❖ Utilized RNAi to study genetic regulation of distal-tip cell migration in *C. elegans*
- ❖ Established relation between specific gene sequences and migration patterns

Publications & Presentations

Ozturk B., **Zhao Y.**, et. al. Atomically Thin Layers of BNCO with Tunable Composition. *Science Advances*. **1** (2015). http://advances.sciencemag.org/content/1/6/e1500094

Zhao Y., Nuhfer, T., & Nisha Shukla. "Synthesis and Characterization of Tetrahexahedral Gold Nanoparticles." Berg Symposium, Carnegie Mellon University. Doherty Hall, Pittsburgh, PA. 21 Sep 2015. Oral Presentation.

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

Awards & Honors

John Clark, Jr. Fellowship Award   **Aug 2018**

- ❖ Fellowship provided by Rice University, aiding in graduate studies

Andrew Carnegie Society (ACS) Scholar   **Sep 2017**

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

Eta Kappa Nu, IEEE Honor Society   **Nov 2017**

Tau Beta Pi Engineering Honors Society   **Nov 2016**

CMU Summer Undergraduate Research Fellowship   **May 2015**

National Merit Scholarship Finalist   **May 2014**

Siemens Science Competition Semifinalist   **Oct 2013**

- ❖ Selected as semifinalist (300 total) for outstanding original research report

Work Experience

Teaching Assistant (TA), 18-240 at Carnegie Mellon University   **Aug 2017 – Present**
- ❖ 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, Amazon.com   **May 2017 – Aug 2017**
- ❖ Working on Amazon AWS, Elastic Compute Cloud Team   **Seattle, WA**
- ❖ Designing and implementing container service

Teaching Assistant (TA), 15-112 at Carnegie Mellon University   **Aug 2016 – Dec 2016**
- ❖ Lead recitation of 20 students, weekly lecture to deepen students' understanding   **Pittsburgh, PA**
- ❖ Perform course logistics: grading, tutoring at office hours, leading review sessions

Skills

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

Languages: Fluent in English and Chinese (Mandarin)

Volunteer Activities

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