Yongyi Zhao

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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 – May 2018**
- **Supervisor:** Prof. Aswin Sankaranarayanan — **Pittsburgh, PA**
- 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**
- **Supervisor:** Dr. Nisha Shukla — **Pittsburgh, PA**
- 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**
- **Supervisor:** Prof. Miriam Rafailovich & Prof. John Jerome — **Stony Brook, NY**
- 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**
- **Supervisor:** Prof. Swastik Kar — **Boston, MA**
- 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**
- **Supervisor:** Prof. Erin Cram — **Boston, MA**
- 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 **Aug 2018**

- Fellowship provided by Rice University, aiding in 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 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 – Dec 2017**
Pittsburgh, PA

- Lead lab section of 30 students, weekly project to deepen students' understanding
- Perform course-support tasks: grading, tutoring at office hours, leading review sessions

Software Development Engineer Intern, Amazon.com **May 2017 – Aug 2017**
Seattle, WA

- Working on Amazon AWS, Elastic Compute Cloud Team
- Designing and implementing container service

Teaching Assistant (TA), 15-112 at Carnegie Mellon University **Aug 2016 – Dec 2016**
Jan 2018 – May 2018
Pittsburgh, PA

- Lead recitation of 20 students, weekly lecture to deepen students' understanding
- 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