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## Education

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**Rice University**  
**Doctor of Philosophy in Electrical and Computer Engineering**

**May 2024 (Expected)**  
**Houston, TX**

**Carnegie Mellon University**  
**Bachelor of Science in Electrical and Computer Engineering**  
Overall GPA: 3.93/4.00

**Aug 2014 – Dec 2017**  
**Pittsburgh, PA**

## Research Experience

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**Carnegie Mellon University: Image Science Lab**

**Jan 2017 – May 2018**  
**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

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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 Tetrahedral Gold Nanoparticles." Berg Symposium, Carnegie Mellon University. Doherty Hall, Pittsburgh, PA. 21 Sep 2015. Oral Presentation.

## Projects

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**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**

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##### **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**

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##### **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
- ❖ 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
- ❖ 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
- ❖ Perform course logistics: grading, tutoring at office hours, leading review sessions

**Jan 2018 – May 2018**  
**Pittsburgh, PA**

#### **Skills**

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##### **Programming/Computing:**

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

**Languages:** Fluent in English and Chinese (Mandarin)

#### **Volunteer Activities**

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##### **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