

PHYSICS RESUME

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EDUCATION

Georgia Institute of Technology

B.S. in Physics

Certificate in Biophysics

August 2015 - May 2019 (Projected)

Current Overall GPA: 3.39

EXPERIENCE

Researcher at Complex Rheology And Biomechanics (CRAB) Lab January 2017 - Present
Georgia Tech

- Explored use of structure in non-homogenous environments in locomotion of *Chionactis* snakes and *C. elegans*
- Comparatively studied lateral undulatory mechanics between *Chionactis* snakes and *C. elegans*
- Designed and executed experiments to study corrective behavior in lateral undulatory snake locomotion
- Designed and built snake-like robot using Arduino to emulate lateral undulatory muscle behavior
- Took on independent project characterizing *C. elegans*' locomotion in natural environments
- Presented progress weekly on all projects mentioned in lab meetings

Facilities Maintenance

Montreat Conference Center

May 2016-August 2016

- Worked full time maintaining facilities at Montreat Conference Center in Montreat, North Carolina
- Performed routine cleaning around the conference center campus
- Set up event spaces for conferences
- Monitored the front desk to answer questions, and manage the lost and found

RESEARCH

AICES Lab

Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen

May 2017 - July 2017

- Three month summer Undergraduate Research Opportunities Program (UROP) in Aachen, Germany
- Learned and worked in the coding language Julia
- Coded the FEAST method to solve large sparse eigenproblems
- Evaluated conditions for spectrum slicing and their effect on computational speed
- Reported progress directly to my supervisor twice a day
- Presented research both in a paper and with a poster

Complex Rheology And Biomechanics (CRAB) Lab

Georgia Tech

January 2017 - Present

Previously spent time in CRAB Lab for class credit, but now work for pay. See Experience section for more information.

PROJECTS

Neurophysics

Fall 2018

- Tested assumption made in Beeler Reuter, 1977, regarding relationship between external calcium ion concentrations and potassium current conductance in cardiac action potentials
- Tested hypothesis with dissected zebrafish hearts exposed to inhibitory neurotoxins

- Used suction electrodes for data collection
- It was concluded assumptions made in the paper were phenomenologically descriptive, but didn't capture the underlying mechanics

Molecular Biophysics

Fall 2017

- Computationally simulated the ability of bilayers of different lipids to react to a shear stress.
- Compared surface tension and Gibbs free energy as a function of change in area
- Concluded POPG lipid bilayers had the most dramatic reaction to shear stress in change in surface tension and Gibbs Free Energy among lipids tested

Physics of Living Systems

Spring 2019

Final project to be determined

SCIENTIFIC PRESENTATIONS

Atlantic Coastal Conference Meeting of the Minds

May 2019

- Co-authored talk for ACC Meeting of the Minds conference at the University of Louisville
- Abstract based on research done in the Neurophysics project outlined above

SKILLS

Higher Level Physics Molecular, Neural, & Macroscopic Biophysics,
 Classical Mechanics, Electrostatics & Dynamics,
 Thermodynamics, Statistical Mechanics,
 Quantum Mechanics, Astrophysics, Atomic Physics

Mathematics Differential, Integral, & Multivariable Calculus,
 Linear Algebra, Differential Equations

Computer Languages Python, MATLAB, Julia, Arduino, LaTeX

Research Arduino, Experimental Design and Execution,
 Video Data Analysis, Soldering, Animal Handling,
 Suction Electrodes, 3D Printing

Spoken Languages English Native
 Spanish Conversational
 Mandarin Chinese Intermediate

Musical Classical Trumpet, Marching Band

LEADERSHIP

Event Committee Chairman, International House at Georgia Tech

- Lived in community of half exchange students and half degree-seeking Georgia Tech students, created for the goal of understanding each others' cultures
- Twice served as the chair for the International Cuisine Committee
- Organized events such as making ratatouille or preparing Thanksgiving dinner for the community
- Oversaw 15-20 committee members in cooking, grocery shopping, and organizing events, among other things
- Managed the committee budget