Roland Allen Sanford

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Education

Rochester Institute of Technology (RIT) Graduation: May 2018
Rochester, NY 14623 GPA: 3.47/4.00

Masters of Science: Applied and Computational Mathematics
- Program Concentration: Scientific Computing, a mixture of numerical analysis and performance computing.
- Thesis Title: Modeling the Group Structure of Cells in a 3D Co-culture.

Bachelors of Science: Double major in Physics and Computational Mathematics

Employment

Computational Imaging Researcher RIT, Johns Hopkins University
Mentor: Dr. Linwei Wang Feb 2015—Present

- Developed a MATLAB pipeline that identifies the region of tissue on a patient's heart that is producing a cardiac arrhythmia.
- Analyzed twelve patients by implementing several signal processing methods and collaborated with physician-scientists at Johns Hopkins Hospital to validate the pipeline.
- Designing of a 120-electrode vest by developing a genetic algorithm that optimizes the electrode locations in order to improve signal quality from the patient's atria.

Contact Lens Research Assistant RIT
Mentor: Dr. David Ross Jan 2015—Present

- Modeled the progression of a soft contact lens and a human eye towards equilibrium.
- Derived the system's governing equations by balancing the mechanical stresses in the eye and on its boundaries.
- Developing C++ code to numerically solve the coupled system of differential equations to a global second-order accuracy.

Web Developer Alden Optical
Mentor: Charley Creighton Aug 2015—Jan 2016

- Created a responsive web application that allows users to compare contact lens design.
- Used the D3 and JQuery JavaScript libraries to display design changes in real-time.

Projects

Numerical Study of Cancer Cells Started April 2016
Examine how the differences in physical properties of cells in a co-culture determine the system's collective behavior. Simulations are conducted in the Julia programming language.

The Heat is On! Completed October 2015
An andriod application that communicates via bluetooth with an arduino board which regulates the heater's output temperature. The heater was built using empty soda cans and old computer fans.

Skills

Language	Python, Java, MATLAB; familiar with C, C++, JavaScript, and Julia
Computational	Parallel & distributed systems, memory management, software engineering
Mathematical	Linear algebra, numerical analysis, stability analysis, finite-difference method
Physics	Variational calculus, data acquisition and analysis, circuit construction
Miscellaneous	Backpacking, winter camping, novice carpentry