

Summary of Biomedical Engineering Experiences

- Solidworks, MATLAB, Labview, ImageJ, Eagle, Arduino
- Iterative design and prototyping, 3D-printing, circuit design/debugging
- Designed and implemented devices for living animals used in research
- Integrated microcontrollers such as Arduinos to manipulate motor control circuitry

Education

UNIVERSITY OF ROCHESTER

Bachelor of Science in Biomedical Engineering
BME Major GPA: 3.08

ROCHESTER, NY

Anticipated May 2016

Work History

UNIVERSITY OF ROCHESTER MEDICAL CENTER

ROCHESTER, NY

Research Assistant Under Dr. Laurel H. Carney

(Full-time summers/Part time semesters)

Spring 2016 to Summer 2014

- Designed and implemented 3D printed device to interface with neural tetrode-containing microdrive (Neuralynx 5 Drive) used in awake rabbit, allowing automated advancement of electrodes in brain, via miniature stepper motors, from remote location.
- Designed 3D printed device improving upon surgical procedure for neural tetrode placement in brain of anesthetized bird via miniature stepper motors and microcontroller
- Designed and built hardware used in auditory behavioral studies of birds in collaboration with computer programming expert and vet tech. Hardware system uses piezoelectric crystals, Arduinos, and integrated circuitry to accelerate collection of behavioral data.
- Constructed 5, 16-channel variable gain amplifiers for neural recording in awake birds and rabbits. Amplifiers utilized high and low-pass filters to improve signal quality.

Biomedical Engineering Projects and Coursework

Introduction to Biomedical Engineering; Biostatistics; Biomechanics; Biosystems and Circuits; MATLAB for Biomedical Engineers; Biomedical Instrumentation; Physiological Control Systems; Systems and Signals; Quantitative Physiology; Digital Signal Processing; Human Anatomy; Mammalian Physiology; Biomedical Ultrasound

- **Quantification of Atrial Blood Ejection Volume, Fall 2015:** Determined pressure-volume relationship in frog atria, exhibiting Starling's law.
- **Design and Construction of ECG monitor, Spring 2015:** Visualized voltage changes from skin electrodes on oscilloscope using instrumentation amplifiers.
- **Design and Construction of Oximeter, Spring 2014:** Collaborated with another student to design a device that utilizes reflected infrared radiation levels from oxygenated hemoglobin in blood just below the skin surface. Device output successfully varied with changes in circulation and oxygen usage.

Athletics and Activities

- Varsity Tennis Team, Captain
- 'UAA Athlete of the Week' title awarded, 2015