Daniel Carbonero

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ENGINEERING, MACHINE LEARNING. NEUROSCIENCE

Graduate Research Assistant
Neuronal Dynamics Lab - Department of Biomedical Engineering at Boston University
Supervisor: **John White PhD**
March 2020 - Present

- Develop and adapt dimensionality reduction (DR) statistical techniques for analyzing neuronal network dynamics recorded using calcium imaging under various neural contexts.
- Design pipeline for characterizing neuronal network dynamics under: increasing concentrations of anesthetic sedation, and natural and artificial memory recall

Associate Engineer
Bio-Vitro Incorporated
Supervisor: **Siddarth Rawal MD**
May 2019 - August 2019

- Optimized previously constructed fluid handling platform for automated cell culture and cell signaling analysis under physiological conditions to be built and sent to collaborating labs.
- Assisted/troubleshot collaborators with use of their platform.

Undergraduate Research Assistant
Duke University Research Experience for Undergraduates - Neurological Prosthesis Research Laboratory
Supervisor: **Warren M. Grill PhD**
May 2018 - August 2018

- Modified and completely automated fully computational, Deep Brain Stimulation, Parkinsonian Neurological model for input of experimentally recorded data.
- Modeled Parkinson's in rat brain using experimental neuronal firing as input to simulate, characterize, and analyze Thalamus firing function to assess effectiveness of Deep Brian Stimulation as treatment for Parkinson's.

Undergraduate Research Assistant
Physiomimetic Microsystems Laboratory - Biomedical Nanotechnology Institute at the University of Miami (BioNIUM)
Supervisor: **Ashutosh Agarwal PhD**
May 2017 - May 2019

- Developed automated pipelines for microscope image data acquisition, processing, and analysis.
- Wrote front-end software to allow user to easily process and analyze images.
- Designed and manufactured an integrated, automated, platform for continuous cell culture and dynamic cell secretion analysis of microphysiological systems.

Student Analyst
Division of Continuing & International Education
Supervisor: **Magaly Abreu**
January 2017 - May 2017

- Developed early iteration of real-time, self-updating student database to ease pulling of information.
- Wrote financial reports to present data in a more clear and efficient matter.

EDUCATION

Boston University
Expected Doctor of Philosophy in Biomedical Engineering (2024)

Boston University
Masters of Science in Biomedical Engineering (August 2022)

The University of Miami
Bachelor of Science in Biomedical Engineering (May 2019)
GPA: 3.8
Provost's Honor Roll, Dean's List, President's Scholarship

SKILLS

Programming: Highly Proficient in: Python, MATLAB
Comfortable with: HTML, CSS, R
Familiar with: C, C++, Java
Engineering Design: CAD, SOLIDWORKS, Rapid Prototyping (3D printing, laser cutting, etc.)
Software: Arduino IDE, COMSOL Multiphysics, ImageJ
Document Preparation: Microsoft Office, Adobe Illustrator
Certifications: Six Sigma Green Belt
Languages: Native in Spanish, fluent in English

HONORS AND AWARDS

NSF Research Traineeship Program Understanding the Brain: Neurophotonics Trainee
NIH Translational Research in Biomaterials Training Grant Fellow
2019 University of Miami Senior Design Expo Industry Impact Award
Alpha Eta Mu Beta (BME Honor Society)
Omicron Delta Kappa (Leadership Honor Society)
Tau Beta Pi (Engineering Honor Society)