# Daniel Carbonero

**EMAIL** danny.carbonero@gmail.com
**WEBSITE** dannycarbonero.github.io

BIOMEDICAL 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) machine learning techniques for analyzing neuronal network dynamics recorded using calcium imaging under various neural contexts.
- Design analysis 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 design of previously constructed fluid handling platform for automated cell culture and cell signaling analysis under physiological conditions for production and sending to collaborating labs.
- Assisted/troubleshot collaborators with use of produced platforms.

## 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 a fully computational, Deep Brain Stimulation, Parkinson's Disease (PD) Neurological model to use experimentally recorded data as inputs
- Modeled PD in rat brain using upstream experimentally recorded neuron firing as input to simulate, characterize, and analyze downstream Thalamus function and activity to assess effectiveness of Deep Brian Stimulation as treatment for PD.

## 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, prototyped, 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.
- Created financial reports to present data more clearly and concisely.

## 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, Cum Laude
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)