# ANDREA ORTUÑO

aio23@cornell.edu

917-291-4918

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## EDUCATION

**Mechanical Engineering**
Robotics, Dynamics, and Controls
*Master of Engineering*
Cornell University '18
GPA: 3.918
Honors: Dean's List
Spring '18, Fall '18

**Biomedical Engineering**
Biomechanics
*Bachelors of Science*
Columbia University '16
GPA: 3.412
Honors: Dean's List
Fall '12, Fall '15

## SKILLS

**Computer**:
Proficient: MATLAB, Python, ImageJ, Creo
Familiar: JavaScript, HTML, MySQL, SolidWorks

**Laboratory:**
Microscopy Assays, Cell Culture, Image Analysis

**Languages:**
Native Spanish Speaker, Fluent German (Sprachdiplom C1)

## WORK EXPERIENCE

**Software Engineer**, OpenBCI, Inc.
New York, NY — February 2019-Present
- Improved the Python code base of the OpenBCI GitHub repository to be more user friendly and compatible with different operating systems, previously it only worked with Linux.
- Created tutorials on how to use machine learning tools in the context of biosensing data.

**Business Operations Manager/Biomedical Engineer Researcher**, OpenBCI, Inc.
New York, NY — June 2016-January 2018
- Managed operational budget, inventory planning, external partner relationships, intern program, and sales operations of OpenBCI.
- Contributed to growing revenue by 200% over one year through novel marketing, improved customer service and retention, and upgraded inventory management.
- Designed and developed medical diagnostic and clinical instrumentation, equipment, and procedures for open-source bio-signaling.
- Ensured compliance with national and international regulatory requirements for the sale of open-source medical devices.

**Data Science and Product Management Intern**, Remedy Partners
New York, NY — June 2015-September 2015
- Created and managed a platform to log EMR/EHR messages received from all clients and made them searchable by relevant criteria using JavaScript and Python.
- Created automatic alert system in Python triggered by abnormal responses, alerting clients of invalid data entry.
- Updated existing program of algorithm of entity resolution and linkage of Remedy Partners using Python.

## RESEARCH EXPERIENCE

**Mechanical Engineering Research Assistant**, Cornell Micro/Nanofluidics Laboratory
Ithaca, NY — February 2018-December 2018
- Researched and implemented a new method for brightfield biological image segmentation using machine learning in ImageJ and MATLAB, speeding up the process by ten times, compared to manual segmentation of images.
- Created voting GUI to compare different spot detection methods for brightfield images and establish a baseline for machine learning training using MATLAB.
- Created GUI to visualize different endocytosome clusters in brightfield images using MATLAB.
- Performed bioimage analysis of endocytosis using machine learning and computer vision techniques in the context of spot detection.

**Biomedical Engineering Research Assistant**, Neurotrauma and Repair Laboratory
New York, NY — September 2013-May 2016
- Conducted electrophysiology & cell death analysis of mild traumatic injury in brain tissue slices (OHSC) using MATLAB.
- Evaluated the time-dependent tolerance criteria of the brain to repeated mild traumatic brain injury.
- Created and modified image recognition code for brain injury data analysis using MATLAB.

## SCIENTIFIC PUBLICATIONS

Effgen, G. B., Ong, T., Nammalwar, S., **Ortuno, A. I.**, Meaney, D. F., Dale Bass, C. R., & Morrison III, B. (2016). Primary blast exposure increases hippocampal vulnerability to subsequent exposure: reducing long-term potentiation. Journal of neurotrauma, 33(20), 1901-1912.

## ENGINEERING PROJECTS

**Is it Trump? Tweetbot**, Cornell University November 2018 – December 2018

- Analyzed tweets from Donald Trump's twitter account using the nltk library and performing sentiment analysis on Python to determine which tweets were written by Donald Trump and which were written by his staff.
- Used Python and scikit-learn's Multi-layer Perceptron classifier to predict if a new tweet was Donald Trump's or not, and used the tweepy library to publish the results as a reply to Donald Trump's tweets.

**Study Buddy Robot**, Cornell University September 2018 – December 2018

- Used Hidden Markov Models to accurately predict the attention of a user on a specific task from their EEG data.
- Collected EEG data from users using Python and open source hardware.
- Used ROS to interface with a robot and provide the user with feedback about their attention state.

**Oculus Prime**, Columbia University September 2015 – May 2016

- Led 4-person team as part of senior design project to successfully design and develop an innovative and low-cost medical device that accurately measures refractive error in a patient's eye and prescribes an accurate prescription for the patient.
- Gathered insight from both experts in the field and potential users to ensure that the device could be used easily and successfully by an untrained healthcare worker in developing countries.

**HelioPelle (Formerly HelioDerm)**, Columbia University September 2014 – April 2015

- Developed a novel, low-cost, patent-pending, non-petroleum based wound repair topical treatment.
- Designed a business platform for the low-cost, environmentally friendly, novel wound treatment "HelioPelle".
- Awarded Second Place Prize ($15000) in the Columbia Undergraduate Challenge of the 2015 Columbia Venture Competition.

## LEADERSHIP

**Cornell University – Graduate Society of Women Engineers** Ithaca, NY

President April 2018 – December 2018

- Increased club awareness through social media platforms, increasing attendance to events by 70% from previous years.
- Led board meetings, organized elections, trained people on event planning, outlined goals and objectives for the board.
- Reorganized group structure to increase participation and interaction between the different club committees.
- Applied to grants and different funding sources to increase our budget by 300% from the previous years.

**Columbia University – Global and Undergraduate Recruitment Committee (GRC and URC)** New York, NY

Co-Chair, Tour guide, and University Recruiter September 2012 – May 2016

- Led social media activities to increase the sense of community within the GRC and utilize social media for outreach efforts.
- Interviewed prospective international students from South America and conducted webinars for incoming students.

**Columbia University – Society of Women Engineers** New York, NY

Alumni Chair & Community Outreach Chair September 2012 – May 2015

- Founded and piloted SEAS Alumni Mentorship program which paired 30 minority first year students with 15 alumni mentors.
- Planned and organized Speed Networking Event with a turnout of over 200 students and 100 alumni.

**Columbia University – Biomedical Engineering Society** New York, NY

Treasurer & Community Outreach Chair February 2014 – May 2015

- Planned budget for the year, gave updates on the accounts to the board, and oversaw and authorized all expenditures.
- Coordinated Mentorship Program connecting Biomedical Engineering students of all different years.

## RELEVANT COURSEWORK

Project Management; Accounting & Finance Decision Making; Physical Product Entrepreneurship; Entrepreneurship in Biotechnology; Computer Aided Manufacturing; Computer Graphics and Design; Mechanics of Fluids; Fluid Biomechanics; CS and Programming in MATLAB; Mechanics; Mechanics of Solids; Solid Biomechanics; Quantitative Physiology I & II; Biomedical Engineering Design; Thermodynamics; Applied Mathematics; Statistics; Engineering in Medicine; Cancer for Engineers & Physicists; Software Carpentry; Machine Learning for Intelligent Systems; Computer Vision; Human-Robot Interaction.