Julien Bloch

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Education

- **UC Berkeley** **GPA 3.4/4**
  Physics and Cognitive Science double major, with Computational Modeling concentration *January 2014–December 2017*

Work History

- **Engineers for Exploration** **San Diego, CA**
  Computer Vision REU Engineering Researcher *July 2017–September 2017*

  Conducted machine learning classification on satellite imagery for the NSF funded Engineers for Exploration program at UC San Diego, under Professor Ryan Kastner and Professor Curt Schurgers. The primary project I worked on was done in partnership with Scripps Intitution of Oceanography, and the purpose of it was to create a database of mangrove ecosystems around the world and automate mangrove land-cover change statistics. My responsibilities included:
  - Quantitatively comparing ML classification algorithms for land-cover mapping from drone and satellite imagery.
  - Porting results from drone image classification to training data for satellite classifier.
  - Creating a database of published remote sensing land-cover classification papers and deciding best-practice approach.
  - Setting up a workstation for ML classification of coral reef images, to be used for tracking coral cover statistics and change.

- **Swarm Lab** **Berkeley, CA**
  Neural Engineering Research Assistant *June 2015–May 2017*

  Worked as a research assistant to Professor Maysam Chamanzar (Carnegie Mellon University) and Professor Alam (UC Berkeley). My participation was focused on a joint project between the EECS Electrical Engineering and Computer Science) and Mechanical Engineering departments. The purpose of the project was to use ultrasound to steer light in neural tissue to noninvasively activate optogenetic neurons. My responsibilities included:
  - Designing, building and maintaining the physical setup of the experiment.
  - Using optics knowledge and equations to build and align optical elements (eg. beam expander, compound confocal lens).
  - Machining parts to be used for the setup. Parts require soldering, laser cutting, threading, lathing, and/or milling, among other processes.
  - Running the experiment by shining lasers through a mouse brain slice and recording all images and data through a custom optical setup.
  - Analyzing 3D intensity graphs from the results and plotting the data in relevant formats in Matlab.

- **Theoretical and Applied Fluid Mechanics Lab** **Berkeley, CA**
  Quantum Fluid Mechanics Research Assistant *August 2014–December 2014*

  Worked as "Undergraduate Research Apprentice" under Professor Reza Alam at TAFLab. The purpose of the project was to compare the mechanics of a droplet bouncing on Faraday waves to a quantum "particle in a box." My responsibilities included:
  - Collecting all published scientific literature surrounding bouncing droplet on Faraday wave mechanics.
  - Updating a LaTeX file with all relevant new material from scientific literature. This file was used by all project members as our seminal source of updated research pertaining to our experiment.
  - Editing and annotating scientific papers ready for publication, written by other professors.

- **Everwise** **San Francisco, CA**
  Business Analyst Intern *August 2013–December 2013*

  Interned in San Francisco based startup Everwise. My official title was Business Analyst, however by the end of the internship I had worked on every aspect of the startup. My responsibilities included:
  - Market research for potential clients, competitors, and partners.
  - Managing the content, strategy, and targets of marketing lead-nurture campaigns.
  - Analyzing user data and creating and submitting analysis reports to CEO.
  - Spearheading a new Peer 360-Review service and app.
  - Handling minutes and write-ups of strategy and consulting meetings.
  - Screening resumes and qualifications of job applicants.

Publications

- **Ultrasound Creates Virtual, Steerable Optical Waveguides In Brain Tissue** *Under review by Nature Communications*
  Co-author with Prof. Chamanzar, Prof. Maharbiz, Prof. Alam.

  A paper from my research at Swarm Lab.

Technical Skills

- **Programming Languages:** Experienced with Python, Java, and LaTeX. Proficient with Matlab, Scheme, and Swift.
- **Machine Learning:** Academic and research experience with AI algorithms, both by implementing them from scratch and by using ML packages and distributions.
- **Software Skills:** Experienced with Git, Salesforce, Photoshop, Illustrator, and all Microsoft Office products.
- **Languages:** Fluent in English and French. Proficient in Spanish.

Leadership

- Officer of Neurotech@Berkeley
- Member of Alpha Tau Omega Leadership Fraternity
- Co-founder and former Secretary of Berkeley Barbell Club
- National Hispanic Scholar
- Recipient of Riverside County Citizenship Award