Jefferey S. **Mentch**

Music and Neuroscience Researcher
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Education

Dartmouth College — *Hanover, NH*

Master of Arts, Digital Musics — *June 2017*

- **Thesis Title:** *Stimulus-Model-Based Reconstruction of Naturalistic Music Stimuli from High-Field fMRI*
- Course work including functional magnetic resonance imaging, MVPA, electroencephalography, music information retrieval, data visualization, multi-variate calculus, programming, sonic arts, computer music composition, music production
- TA: Intro to Sonic Arts (*Ashley Fure*), Sonic Space and Form (*Sangwook "Sunny" Nam*), Intro to Sonic Arts (*Clara Latham*)

The Pennsylvania State University — *University Park, PA*

Bachelor of Science, Biology — *May 2014*

- Minor in Music Technology
- Dean's List (6 semesters), GPA last 2 years: 3.8

Experience

Dartmouth College, Bregman Media Labs (Prof. Michael Casey) — *Hanover, NH*

Research Assistant — *Sep. 2016 - Present*

- Poster presentation at *The Neurosciences and Music VI - Music, Sound and Health* - Boston, MA - Jun. 2017
- Implemented a neural encoding model based stimulus reconstruction framework on the supercomputer cluster.
- Applied multivariate pattern analysis (MVPA) to 7T brain imaging data using PyMVPA.
- Trained and tested cross-validated regression models on datasets in audio feature and brain feature space.
- Extracted audio features using music information retrieval toolkits for use in MVPA.
- Processed group fMRI data using FreeSurfer, AFNI, and FSL.

Abington Neurological Associates, Clinical Trial Center (Dr. David Weisman) — *Willow Grove, PA*

Clinical Research Coordinator — *Sep. 2014 - Aug. 2015*

- Coordinated phase II and phase III clinical trials of investigational drugs for the treatment of Alzheimer's disease.
- Patient care including: patient interviews, dispensing investigational products, collecting lab samples, taking vital signs.
- Maintained regulatory documents as mandated by the FDA and communicated with the IRB and trial sponsors

The Pennsylvania State University, Deep Sea Lab (Prof. Charles Fisher) — *University Park, PA*

Research Assistant — *Jan. 2013 – Aug. 2014*

- Researched the composition and decay over time of deep-sea coral environments in the Gulf of Mexico.
- Conducted multivariate statistical analysis using Primer and R and digitization of divesite mosaics using ArcGIS.
- Research Cruise - E/V Nautilus - investigated the impact of the 2010 Deepwater Horizon oil spill - ECOGIG, June 2014

QuantTera, R&D Microelectronics Company — *Scottsdale, AZ*

NSF REU intern, Seasonal Research Assistant — *Apr. 2011 - Jan. 2013*

- Investigated novel techniques for semiconductor device wafer bonding and processed and tested semiconductors.
- Technical representative at the 2013 Consumer Electronics Show - Las Vegas, NV

Children's Hospital of Philadelphia, Center for Applied Genomics — *Philadelphia, PA*

Undergraduate Research Intern — *Summer 2011*

- Project Title: Use of pharmacological inhibitors to delineate Decoy Receptor 3 (DcR3) Signaling pathway in Epstein–Barr virus transformed cell lines (proteomics of inflammatory bowel disease)

Skills

General Software	Python, bash, p5.js, MaxMSP, Adobe Creative Suite, ArcGIS, Logic Pro, Ableton Live, LaTeX
Neuroimaging	PyMVPA, AFNI, FreeSurfer, FSL (actively improving proficiency with these tools)
Biological Assays	Western blot, PCR, ELISA, MTT, cell electroporation, siRNA knockdown
Semiconductors	Thin-film lapping and polishing, photoluminescence, bipolar transistor testing, wafer bonding
GRE	170/170V, 167/170Q
Languages	English, Spanish