Jefferey S. **Mentch**

AUDITION | PERCEPTION | COMPUTATION

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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:** Neuroscience of Music (Michael Casey), MVPA (Jim Haxby), fMRI, EEG, music information retrieval, data sonification/visualization, multi-variate calculus, computer music composition, music recording and production

The Pennsylvania State University — *University Park, PA*

BACHELOR OF SCIENCE, BIOLOGY — *May 2014*

- Minor in Music Technology, Deans List

Experience

Massachusetts Institute of Technology, Kanwisher Lab (Dr. Caroline Robertson) — *Cambridge, MA*

TECHNICAL ASSOCIATE — *Sep. 2017 - Present*

- Developed a panoramic real-world VR eye-tracking experiment to investigate visual salience and atypical attention in ASD.
- Built and analyzed machine learning models of attention using eye-gaze data and 360° images.
- Coordinated a pharmaceutical study exploring the role of GABA in binocular rivalry.

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

RESEARCH ASSISTANT, TA — *Sep. 2015 - Sep. 2017*

- Implemented a neural encoding model based stimulus reconstruction framework on the supercomputer cluster applying multivariate pattern analysis to 7T fMRI data (in preparation for publication).
- TA: Intro to Sonic Arts (*Ashley Fure*), Sonic Space and Form (*Sangwook "Sunny" Nam*), Intro to Sonic Arts (*Clara Latham*)

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.

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

RESEARCH ASSISTANT — *Jan. 2013 – Aug. 2014*

- Conducted multivariate statistical analysis using Primer, R, and ArcGIS to assess impact of Deepwater Horizon oil spill.

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

NSF REU INTERN, SEASONAL TECH — *Apr. 2011 - Jan. 2013*

- Investigated novel techniques for semiconductor device wafer bonding; exhibit at 2013 Consumer Electronics Show

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

SUMMER RESEARCH INTERN — *Summer 2011*

- Project: Use of pharmacological inhibitors to delineate DcR3 signaling pathway in EBV cell lines; proteomics of IBD

Publications/Presentations

JOURNAL ARTICLES

GABAergic inhibition gates perceptual awareness during binocular rivalry (Under Review - PNAS)
Jefferey Mentch, Alina Spiegel, Catherine Ricciardi, Caroline E. Robertson

Stimulus-Model-Based Reconstruction of Polyphonic Music Features from High-Field fMRI (In Preparation)
Michael Casey, Jefferey Mentch

Ecosystem Impacts of Oil and Gas Inputs to the Gulf of Mexico (ECOGIG)
Charles R. Fisher, Iliana B. Baums, Amanda W.J. Demopoulos, Nicole Dubilier, Fanny Girard, Kaitlin Kovacs, Melissa Kurman, Jeff Mentch, Jillian Petersen, Miles Saunders, Lizbeth Sayavedra, Ryan J. Sibert, Sam Vohsen
Oceanography 28.1, Supplement: New Frontiers in Ocean Exploration: The E/V Nautilus 2014 Gulf of Mexico and Caribbean Field Season (**2015**) pp. 28–29. **2015**

Presentations

Causal Push-and-Pull Modulation of Binocular Rivalry Dynamics using GABAergic Drugs
Jeff Mentch, Alina Spiegel, Catherine Ricciardi, Nancy Kanwisher, Caroline E. Robertson
Vision Sciences Society Annual Meeting, May **2018**, 53.356

Visual Salience Model of Active Viewing in 360° Real-World Scenes
Caroline E. Robertson, Jeff Mentch, Nancy Kanwisher
Vision Sciences Society Annual Meeting, May **2018**, 56.462

Stimulus-Model-Based Reconstruction of Polyphonic Music Features from High-Field fMRI
Michael Casey, Jeff Mentch
The Neurosciences and Music VI: Music, Sound and Health, Jun. **2017**, B3-5

Stimulus-Model-Based Reconstruction of Naturalistic Musical Stimuli from High-Field fMRI
Michael Casey, Jeff Mentch
Dartmouth College Graduate Student Poster Session, Apr. **2017**

Skills

General Software	Python, MATLAB, bash, Unity/C#, p5.js, MaxMSP, Adobe Creative Suite, ArcGIS, Logic Pro, Ableton Live, LaTeX
Neuroimaging	PyMVPA, AFNI, FreeSurfer, FSL
GRE	170/170V, 167/170Q
Languages	English, Spanish