

Jefferey S. Mentch

MUSIC | PERCEPTION | COMPUTATION

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Experience

Massachusetts Institute of Technology, Kanwisher Lab (Dr. Caroline Robertson)

Cambridge, MA

TECHNICAL ASSOCIATE - COGNITIVE NEUROSCIENCE

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.
- Recruited and facilitated VR visual perception studies for children and adults with and without ASD.

Dartmouth College, Bregman Media Labs (Prof. Michael Casey)

Hanover, NH

RESEARCH ASSISTANT, TA - NEUROSCIENCE AND MUSIC

Sep. 2015 - Sep. 2017

- 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 applying multivariate pattern analysis to 7T fMRI data (in preparation for publication).

Abington Neurological Associates, Clinical Trial Center (Dr. David Weisman)

Willow Grove, PA

CLINICAL RESEARCH COORDINATOR - ALZHEIMER'S DISEASE

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 - MARINE BIOLOGY

Jan. 2013 - Aug. 2014

- Conducted multivariate statistical analysis using Primer and R and digitization of divesite mosaics using ArcGIS.
- Investigated the impact of the 2010 Deepwater Horizon oil spill - Research Cruise - E/V Nautilus, 2014

QuantTera, R&D Microelectronics Company

Scottsdale, AZ

NSF REU INTERN, SEASONAL TECH - PHOTONIC TELECOMMUNICATIONS / NANOTECHNOLOGY

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

UNDERGRADUATE RESEARCH INTERN - GENOMICS / PROTEOMICS

Summer 2011

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

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, 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, GPA last 2 years: 3.8

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

Biological Assays Western blot, PCR, ELISA, MTT, cell electroporation, siRNA knockdown

GRE 170/170V, 167/170Q

Languages English, Spanish

JOURNAL ARTICLES

GABAergic inhibition gates perceptual awareness during binocular rivalry (Under Review)

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