Jefferey S. **Mentch**

AUDITION | PERCEPTION | COMPUTATION

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Education

Harvard University — *Cambridge, MA*

DOCTOR OF PHILOSOPHY, SPEECH AND HEARING BIOSCIENCE AND TECHNOLOGY (SHBT) — *Expected May 2024*

- **Research:** Applying data-driven machine learning and TDA approaches to large openly available naturalistic neuroimaging datasets with Satrajit Ghosh in the Senseable Intelligence Group at MIT.

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*
- **Coursework:** Neuroscience of Music (Michael Casey), MVPA (Jim Haxby), fMRI, EEG, music information retrieval, sonification

The Pennsylvania State University — *University Park, PA*

BACHELOR OF SCIENCE, BIOLOGY — *May 2014*

- Minor in Music Technology, Deans List

Experience

Dartmouth College, Psychological and Brain Sciences (Prof. Caroline Robertson) — *Hanover, NH*

MIT, McGovern Institute for Brain Research (Prof. Nancy Kanwisher) — *Cambridge, MA*

LAB MANAGER, TECHNICAL ASSOCIATE — *Sep. 2017 - July 2019*

- Developed a naturalistic 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 musical stimulus reconstruction framework on the supercomputer cluster.
- Applied multivariate pattern analysis to 7T fMRI data.
- 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*

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

Publications/Presentations

JOURNAL ARTICLES

Privileged Zero-Shot AutoML (Submitted+arXiv)
Nikhil Singh, Brandon Kates, Jeff Mentch, Anant Kharkar, Madeleine Udell, Iddo Drori
arXiv:2106.13743 (Feb **2021**). Feb **2021**

Image2Reverb: Cross-Modal Reverb Impulse Response Synthesis
Nikhil Singh, Jeff Mentch, Jerry Ng, Matthew Beveridge, Iddo Drori
International Conference on Computer Vision (ICCV) (Oct **2021**). Oct **2021**

Active vision in immersive, 360° real-world environments
Amanda J. Haskins, Jeff Mentch, Thomas L. Botch, Caroline E. Robertson
Scientific Reports 10, 14304 (Aug **2020**). Aug **2020**

GABAergic inhibition gates perceptual awareness during binocular rivalry
Jeff Mentch, Alina Spiegel, Catherine Ricciardi, Caroline E. Robertson
The Journal of Neuroscience 0836-19 (Aug **2019**). Aug **2019**

Slower Binocular Rivalry in the Autistic Brain
Alina Spiegel, Jeff Mentch, Amanda J. Haskins, Caroline E. Robertson
Current Biology (Aug **2019**). Aug **2019**

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

Binocular Rivalry Dynamic Discriminates Autism Genetic Subgroups (*Presented by YB Choi)
Yeo Bi Choi, Jeff Mentch, Caitlin Van Wicklin, Caroline E. Robertson
International Society for Autism Research, May **2021**, 38228

Active Vision Impacts How We Move Our Eyes and What We Attend To: Evidence from Eye-tracking in Immersive, 360° Real-World Environments (*Presented by AJ Haskins)
Amanda J. Haskins, Jeff Mentch, Thomas L. Botch, Adam Steel, Caroline E. Robertson
Vision Sciences Society Annual Meeting, Oct **2020**, 20.11.1423

Music Stimulus-Encoding-Model Reconstruction for Validation of Cognitive Representations in fMRI (*Presented by MA Casey)
Michael A Casey, Jeff Mentch
Biennial Meeting of the Society for Music Perception and Cognition, Aug **2019**, KC802

Differences in Naturalistic Scene-Viewing in Individuals with Genetic Variations Linked to Autism
Jeff Mentch, Caroline E. Robertson
Vision Sciences Society Annual Meeting, May **2019**, 36.425

Gaze Behavior During 360°, Naturalistic Scene-Viewing (*Presented by TL Botch)
Thomas L Botch, Jeff Mentch, Caroline E. Robertson
Vision Sciences Society Annual Meeting, May **2019**, 36.358

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

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