

**Jenelle Feather**  
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## Education

<b>Massachusetts Institute of Technology</b> PhD in Brain and Cognitive Sciences	Sept 2016-Sept 2022
<b>Massachusetts Institute of Technology</b> Bachelors of Science in Physics Bachelors of Science in Brain and Cognitive Sciences	Sept 2009-June 2013

## Research Groups

<b>Flatiron Institute Center for Computational Neuroscience</b> Research Fellow, Advisors SueYeon Chung and Eero Simoncelli	Oct 2022-Present
<b>Laboratory for Computational Audition, MIT</b> PhD Candidate, Advisor Josh McDermott	Sept 2016-Sept 2022
<b>Google</b> Research Intern, Machine Perception	June 2019-Sept 2019
<b>Lawrence Livermore National Lab</b> CSGF Summer Practicum, Center for Applied Scientific Computing	June 2018-Aug 2018
<b>UC Berkeley &amp; UCSF Graduate Program in BioEngineering</b> PhD Student (Transferred)	Sept 2015-Aug 2016
<b>Kanwisher Lab, MIT</b> Research Assistant, Advisor Nancy Kanwisher	June 2013-Aug 2015
<b>MITRE Corporation</b> Summer Intern, ISR Division	May 2012-Sept 2012
<b>Moore Lab, MIT</b> Undergraduate Research Assistant, Advisor Dominique Pritchett	Jan 2010-Aug 2011

## Fellowships

<b>Flatiron Institute Research Fellow</b>	2022-
<b>Friends of McGovern Institute Graduate Fellowship</b>	2020-2021
<b>Department of Energy Computational Science Graduate Fellowship</b>	2016-2020
<b>National Science Foundation Graduate Fellowship (declined)</b>	2016

## Invited Talks and Panels

<b>Junior Scientist Workshop on Theoretical Neuroscience, Janelia Campus (upcoming)</b>	Nov 2023
<b>Comparing artificial and biological networks, Cognitive Computational Neuroscience</b>	Aug 2023
<b>Junior Theoretical Neuroscience Workshop, Flatiron CCN</b>	June 2023
<b>Flatiron-Wide Machine Learning Meeting</b>	June 2023
<b>Auditory SPLASH, University of Pennsylvania</b>	April 2023
<b>Deep learning in brains, minds and machines, Brown, Guest Lecture</b>	April 2023
<b>Shared Visual Representations in Humans and Machines, NeurIPS Workshop</b>	Dec 2022
<b>Conference on Frontiers in Applied &amp; Computational Mathematics, NJIT</b>	May 2022
<b>Center for Computational Neuroscience, Flatiron Insitute</b>	February 2022
<b>BCS-CSAIL Bridge, MIT</b>	November 2021
<b>Cog Lunch, MIT Department of Brain and Cognitive Sciences</b>	February 2021
<b>Social Cognitive Neuroscience Laboratory, MIT</b>	January 2021
<b>CBMM Panel Discussion: Should models of cortex be falsifiable?, MIT</b>	December 2020
<b>Computational Research in Boston and Beyond</b>	October 2020
<b>Scrutinizing Models of Brain Function, Cosyne Workshop</b>	March 2020

## Journal Publications

- Model metamers illuminate divergences between biological and artificial neural networks. **Feather, J.**, Leclerc, G., Mađdry, A., McDermott, J. (In Press, Nature Neuroscience).
- Many, but not all, deep neural network audio models predict brain responses and exhibit hierarchical layer-region correspondence. Tuckute, G.\* **Feather, J.\***, Boebinger, D., McDermott, J. (submitted, bioRxiv preprint available). \*co-first authors
- Intracranial recordings from human auditory cortex reveal a neural population selective for song. Norman-Haignere, S., **Feather, J.**, Brunner, P., Ritaccio, S., McDermott, J., Schalk, G., and Kanwisher, K. Current Biology. (2022).
- Representational similarity precedes category selectivity in the developing ventral visual pathway. Cohen, M., Dilks, D., Koldewyn, K., Weigelt, S., **Feather J.**, Kell, A., Keil, B., Fischl, B., and Zöllei, L., Wald, L. Saxe, R., Kanwisher K. Neuroimage. (2019).
- Connectivity precedes function in the development of the visual word form area. Saygin, Z., Osher, D., Norton, E., Youssoufian, D., Beach, S., **Feather J.**, Gaab, N., Gabrieli, J., & Kanwisher, K. Nature Neuroscience. (2016).
- Open Science Collaboration. Estimating the reproducibility of psychological science. Science. (2015).
- Open Science Collaboration. An Open, Large-Scale, Collaborative Effort to Estimate the Reproducibility of Psychological Science. Perspectives on Psychological Science. (2012).

## Review and Spotlight Articles

- Unveiling the benefits of multitasking in disentangled representation formation. **Feather, J.** and Chung, S. Trends in Cognitive Science. (2023).

## Conference Proceedings

- A Spectral Theory of Neural Prediction and Alignment. Canatar, A.\*, **Feather, J.\***, Wakhloo, A., and Chung, S. (submitted, under review). \*co-first authors
- Neural Population Geometry Reveals the Role of Stochasticity in Robust Perception. Dapello, J.\*, **Feather, J.\***, Le, H.\*, Marques, T., Cox, D., McDermott, J., DiCarlo, J.J. and Chung, S. Advances in Neural Information Processing Systems. (2021). \*co-first authors
- Deep Network Perceptual Losses for Speech Denoising. Saddler MR.\*, Franci A.\*, **Feather J.**, Qian K. Qian, Zhang Y., & McDermott JH. Interspeech. (2021). \*co-first authors
- Metamers of neural networks reveal divergence from human perceptual systems. **Feather J.**, Durango A. Gonzalez R., & McDermott J. Advances in Neural Information Processing Systems. (2019).
- Untangling in Invariant Speech Recognition. Stephenson C., **Feather J.**, Padhy S. Elibol O., Tang H., McDermott J., Chung S. Advances in Neural Information Processing Systems. (2019).
- Auditory texture synthesis from task-optimized convolutional neural networks. **Feather J.** & McDermott, J. Conference on Cognitive Computational Neuroscience. (2018) (Podium Presentation).

## Conference Abstracts

- Model metamers complement existing benchmarks of biological and artificial neural network alignment. **Feather J.**, & McDermott, J. Cosyne Abstracts (2023)
- Many But Not All Deep Neural Network Audio Models Predict Auditory Cortex Responses and Exhibit Hierarchical Layer-Region Correspondence. **Feather J.**, Tuckute, G., Boebinger, D., & McDermott, J. Association for Research in Otolaryngology Midwinter Meeting. (2023).

Many, but not all, deep neural network audio models predict auditory cortex responses and exhibit hierarchical layer-region correspondence. Tuckute, G., **Feather J.**, Boebinger, D., & McDermott, J. Cosyne Abstracts. (2022).

Adversarial training aligns invariances between artificial neural networks and biological sensory systems. **Feather J.**, Durango, A., Leclerc, G., Mađry, A., & McDermott, J. Cosyne Abstracts. (2021).

Adversarially robust training aligns auditory invariances between artificial neural networks and human observers. **Feather J.**, Durango, A., Leclerc, G., Mađry, A., & McDermott, J. Advances and Perspectives in Auditory Neuroscience (APAN). (2020).

Compression of sound texture statistics reveals low dimensional texture representation . Durango, A.\*, **Feather J.\***, & McDermott, J. Advances and Perspectives in Auditory Neuroscience (APAN). (2020). \*co-first authors

Model metamers reveal that deep neural network invariances differ from human perceptual invariances. **Feather J.** Durango, A., Gonzalez, R., & McDermott, J. Computational and Systems Neuroscience (Cosyne). (2020).

Metamers of audio-trained deep neural networks. **Feather J.**, Durango, A., Gonzalez R., & McDermott, J. Advances and Perspectives in Auditory Neuroscience (APAN). (2019).

Auditory Texture Models Derived from Task-Optimized Deep Neural Network Representations. **Feather J.** & McDermott, J. Association For Research In Otolaryngology (ARO) Annual MidWinter Meeting. (2019) (Podium Presentation).

Auditory texture synthesis from task-optimized convolutional neural networks. **Feather J.** & McDermott, J. Society for Neuroscience (2018).

Neural Selectivity for Music, Speech, and Song in Human Auditory Cortex. Norman-Haignere, S., **Feather J.**, Brunner, P., Ritaccio, A., McDermott, J., Kanwisher, N., & Schalk, G. Society for Neuroscience (2018).

Model sonification reveals advantages of task-optimized sensory models. **Feather J.** & McDermott, J. Computational and Systems Neuroscience (Cosyne). (2018).

Sonification of auditory models via synthesis of statistically matched stimuli. **Feather J.** & McDermott, J. International Conference on Auditory Cortex. (2017).

High-resolution intracranial recordings provide direct electrophysiological evidence for music and speech-selective neural populations in human auditory cortex. **Feather J.**, Norman-Haignere, S., Brunner, P., Ritaccio, A., McDermott, J., Kanwisher, N., & Schalk, G. American Academy of Neurology. (2017) (Podium Presentation).

High-resolution intracranial recordings provide direct electrophysiological evidence for music and speech-selective neural populations in human auditory cortex. Norman-Haignere, S., **Feather J.**, Brunner, P., Ritaccio, A., McDermott, J., Kanwisher, N., & Schalk, G. Society for Neuroscience (2016).

Tikhonov regularized regression for voxel-wise modeling of fMRI responses to natural stories. **Feather J.**, Huth, A., Nunez-Elizalde, A., & Gallant, J. Pattern Recognition for Neural Imaging (2016), and Organization for Human Brain Mapping (2016).

Common representational structures across the ventral visual pathway of children and adults. Cohen, M., Dilks, D., **Feather J.**, Koldewyn, K., Weight, S., & Kanwisher, N. Journal of Vision. (2016).

Saygin, Z., Scott, T., **Feather J.**, Fedorenko, E., & Kanwisher, N. The VWFA and FFA have sharply contrasting functional selectivities and patterns of connectivity. Journal of Vision 15.12 (2015): 914-914.

Lafer-Sousa R., Conway, B., Kell, A., **Feather J.**, Takahashi, A., Kanwisher N. Similar organization of the ventral visual pathway in humans and macaque monkeys: Color regions sandwiched between face and scene regions. Soc. Neurosci. Abstr. (2014).

Lafer-Sousa R., Kell, A., Takahashi, A., **Feather J.**, Conway, B., Kanwisher N. Parallel processing of colors and faces in human ventral visual stream: functional evidence and technical challenges. Journal of Vision Abstr. (2014).

### Teaching Experience

<b>MIT Brain And Cognitive Sciences</b> Project Mentor	Sept 2020-Dec 2020
Projects in the Science of Intelligence	
<b>MIT Brain And Cognitive Sciences</b> Teaching Assistant	Feb 2017-May 2017
Introduction to Neural Computation	
<b>MGH/HST Martinos Center</b> Technical Assistant	Sept 2013, April 2014, Sept 2014
Functional MRI Visiting Fellowship, Multimodality Short Course	
<b>MIT's Concourse Program</b> Teaching Assistant	Sept 2011–May 2013
Introduction to Classical Mechanics, Introduction to Electricity and Magnetism	

### Mentoring Experience

<b>Flatiron Institute Summer Intern Program</b> , Mentor	2023
<b>MIT Undergraduate Research Opportunities Program</b> , Mentor	2018-2022
<b>MIT BCS Postbaccalaureate Program</b> , Mentor	2018-2020
<b>Center for Brain Minds and Machines Summer Research Program</b> , Mentor	2017, 2020

### Professional Activities

<b>Flatiron Institute Diversity Committee</b> , Center Representative	2023-Present
<b>Student Representative on BCS Department Head Search Committee</b>	2021
<b>Cosyne Workshop Organizer: Scrutinizing Models of Brain Function</b>	2020
<b>MIT Computational Tutorials</b> , Seminar Organizer	2016-2022
<b>Openmind Computing Cluster</b> , Group Representative	2016-2022
<b>MIT Undergraduate Reading Group in Audition</b> , Organizer	Fall 2012

### Honors and Awards

<b>Top 10% High-Scoring Reviewer Award, NeurIPS 2020</b>	2020
<b>Speed Up Green Up AI Hackathon: Most heroic achievement</b>	2020
<b>Travel award for NeurIPS</b>	2019
<b>MIT IBM Quest: Best Poster Award</b>	2019
<b>Travel award for ARO Annual MidWinter Meeting</b>	2019
<b>Travel award for Conference on Cognitive Computational Neuroscience</b>	2018
<b>Hans-Lukas Teuber Award for Outstanding Academics in BCS at MIT</b>	2013

### Skills

**Machine Learning:** TensorFlow, PyTorch  
**General Software Engineering:** Python (numpy, pandas, sklearn), MATLAB  
**Data Visualization:** Matplotlib, Adobe Illustrator, Adobe InDesign, TensorBoard  
**Perception and Neuroscience:** Amazon Mechanical Turk, PsychToolbox, FreeSurfer (fMRI)  
**Misc:** Signal Processing, Parallel Computing, Singularity/Docker, Jupyter, L<sup>A</sup>T<sub>E</sub>X

### Mentorship

<b>Zijing Wu</b> , Flatiron Institute Undergraduate Intern Program	2023-Present
<b>Ariel Largen</b> , Flatiron Institute Undergraduate Intern Program	2023-Present
<b>Francesco Mantegna</b> , Flatiron Institute Graduate Intern Program	2023-Present
<b>Alex Durango</b> , MIT Post-Baccalaureate Program	2019-2021
<b>Christina Trexler</b> , MIT Summer Research Program, Senior Thesis Advisor	2020-2021
<b>Michelle Hung</b> , MIT Undergraduate Research Opportunities Program	2021
<b>Mariana Gomez del Campo</b> , MIT Undergraduate Research Opportunities Program	2018
<b>Pedro Ribeiro</b> , MIT Summer Research Program	2017