

# Serra E. Favila

---

Columbia University  
Department of Psychology  
1190 Amsterdam Ave New York, NY 10027

sef2177@columbia.edu  
sfavila.github.io

## EDUCATION

2019 Ph.D. New York University Cognition and Perception  
2011 B.A. Stanford University Human Biology, with Distinction and Honors

## RESEARCH TRAINING

2019– Postdoctoral Scientist Columbia University, Department of Psychology  
PI: Mariam Aly and Joshua Jacobs  
2013–2019 Graduate Researcher New York University, Department of Psychology  
PI: Brice Kuhl and Jonathan Winawer  
2011–2013 Research Assistant Stanford University, Department of Psychology  
PI: Anthony Wagner

## FUNDED RESEARCH

2020–2024 NIH Blueprint Diversity (D–SPAN) K00 Award | NEI  
K00 EY031607 – *Neural mechanisms for memory-guided visual behavior in humans*  
\$313,424 total direct costs awarded Role: PI  
2017–2019 NIH Blueprint Diversity (D–SPAN) F99 Award | NINDS  
F99 NS105223 – *Spatiotemporal dynamics of episodic memory retrieval*  
\$73,050 total direct costs awarded Role: PI  
2013–2016 NSF Graduate Research Fellowship

## AWARDS AND HONORS

2020 Elsevier/Vision Research Travel Award, Vision Sciences Society  
2017 Visual Neuroscience Traineeship, NIH NEI T32 EY007136  
2013 Opportunity Fellowship, New York University  
2011 Joshua Lederberg Award for Academic Excellence in Human Biology, Stanford University  
2011 Chicano/Latino Community Scholar Prize for Academic Excellence, Stanford University  
2010 Undergraduate Advising and Research Major Grant, Stanford University  
2007 National Merit Scholar

## PUBLICATIONS

**Favila SE**, Kuhl BA, & Winawer J (2022). Perception and memory have distinct spatial tuning properties in human visual cortex. *Nature Communications*, 13, 5864.

+Media coverage: Quanta Magazine

Wanjia G, **Favila SE**, Kim G, Molitor RJ, & Kuhl BA (2021). Abrupt hippocampal remapping signals resolution of memory interference. *Nature Communications*, 12, 4816.

**Favila SE**, Lee H, & Kuhl BA (2020). Transforming the concept of memory reactivation. *Trends in Neurosciences*, 43, 939–950.

**Favila SE**, Samide R, Sweigart SC, & Kuhl BA (2018). Parietal representations of stimulus features are amplified during memory retrieval and flexibly aligned with top-down goals. *Journal of Neuroscience*, 38, 7809–7821.

Carr VA, Bernstein JD, **Favila SE**, Rutt BK, Kerchner GA, & Wagner AD (2017). Individual differences in associative memory among older adults explained by hippocampal subfield structure and function. *Proceedings of the National Academy of Sciences, USA*, 114, 12075–12080.

Chanales AJH, Oza A, **Favila SE**, & Kuhl BA (2017). Overlap among spatial memories triggers repulsion of hippocampal representations. *Current Biology*, 27, 2307–2317.e5.

Brown TI, Carr VA, LaRocque KF, **Favila SE**, Gordon AM, Bowles B, Bailenson JN, & Wagner AD (2016). Prospective representation of navigational goals in the human hippocampus. *Science*, 352, 1323–1326.

**Favila SE**, Chanales AJH, & Kuhl BA (2016). Experience-dependent hippocampal pattern differentiation prevents interference during subsequent learning. *Nature Communications*, 7, 11066.

**Favila SE** & Kuhl BA (2014). Stimulating memory consolidation. *Nature Neuroscience (News and Views)*, 17, 151–152.

## MANUSCRIPTS

Wang S-F, Carr VA, **Favila SE**, Bailenson JN, Brown TI, Jiang J, & Wagner AD (in revision). Representations of local spatial information in the human medial temporal lobe during memory-guided navigation. *bioRxiv*, 2020.11.18.389346.

## INVITED TALKS

Jun 2022	MPIB Berlin	Neurocode Research Group
Apr 2020	Dartmouth University	Brain Imaging Center fMRI brown bag
Dec 2018	Columbia University	Memory, Attention, & Navigation Meeting
Dec 2018	Yale University	Visual Cognitive Neuroscience Lab

## CONFERENCE PRESENTATIONS

**Favila SE** & Aly M (Sep 2022). Resolving competition during memory-guided visual attention. Talk presented at *Manhattan Area Memory Meeting*, New York, NY.

**Favila SE** & Aly M (Apr 2022). Resolving competition during memory-guided visual attention. Poster presented at *Cognitive Neuroscience Society*, San Francisco, CA.

**Favila SE** & Aly M (Mar 2021). Resolving competition during memory-guided visual exploration. Poster presented at *Cognitive Neuroscience Society*, virtual meeting.

**Favila SE** & Winawer J (Jun 2020). Retinotopic reactivation in human visual cortex tracks memory success in a single-shot encoding paradigm. Poster presented at *Vision Sciences Society*, virtual meeting.

Guo W, Molitor R, **Favila SE**, & Kuhl BA (May 2020). Repulsion of hippocampal representations is time-locked to resolution of memory interference. Poster presented at *Cognitive Neuroscience Society*, virtual meeting.

**Favila SE** & Winawer J (Oct 2019). Incidental spatial encoding in human visual memory. Poster presented at *Society for Neuroscience*, Chicago, IL.

Guo W, Kim G, **Favila SE**, & Kuhl BA (Oct 2019). Repulsion of competing hippocampal representations parallels learning-related reductions in memory interference. Poster presented at *Society for Neuroscience*, Chicago, IL.

**Favila SE**, Kuhl BA, & Winawer J (May 2019). Long-term spatial memory representations in human visual cortex. Talk presented at *Vision Sciences Society*, St Pete Beach, FL.

**Favila SE**, Kuhl BA, & Winawer J (Nov 2018). Neural encoding of spatial information during visual perception and memory retrieval. Poster presented at *Society for Neuroscience*, San Diego, CA.

Long NM, **Favila SE**, & Kuhl BA (Nov 2018). The cortical locus of stimulus representations is influenced by the state of the memory system. Poster presented at *Society for Neuroscience*, San Diego, CA.

Wang S-F, Carr VA, **Favila SE**, Bailenson JN, Brown TI, Jiang J, & Wagner AD (Apr 2018). Representations of local information in human medial temporal lobe during memory-guided spatial navigation. Poster presented at *International Conference on Learning & Memory*, Huntington Beach, CA.

**Favila SE**, Long NM, & Kuhl BA (Nov 2016). Stimulus-specific memory representations in lateral parietal cortex. Poster presented at *Society for Neuroscience*, San Diego, CA.

Chanales AJH, **Favila SE**, & Kuhl BA (Nov 2016). Overlap between real-world spatial routes triggers divergence of their hippocampal representations. Talk presented at *Society for Neuroscience*, San Diego, CA.

Brown TI, LaRocque KF, Carr VA, **Favila SE**, Gordon AM, Bowles B, Bailenson JN, & Wagner AD (Nov 2016). Mechanisms of prospective navigation in the human brain. Talk presented at *Society*

for *Neuroscience*, San Diego, CA.

Wang S-F, Carr VA, **Favila SE**, Bailenson JN, & Wagner AD (Nov 2016). Functional connectivity in the human medial temporal lobe during memory-guided spatial navigation. Poster presented at *Society for Neuroscience*, San Diego, CA.

**Favila SE**, Samide R, & Kuhl BA (Apr 2016). Distributed cortical representations of visual features and items in perception and memory. Poster presented at *Cognitive Neuroscience Society*, New York, NY.

**Favila SE**, Samide R, & Kuhl, BA (Oct 2015). Distributed cortical representations of visual features in perception and memory. Poster presented at *Society for Neuroscience*, Chicago, IL.

Brown TI, LaRocque KF, **Favila SE**, Carr VA, Gordon AM, Bowles B, & Wagner AD (Oct 2015). Prospective representation of navigational events in the human hippocampus. Poster presented at *Society for Neuroscience*, Chicago, IL.

**Favila SE**, Chanales AJH, & Kuhl BA (May 2015). Hippocampal pattern separation is tuned by experience for the benefit of future learning. Talk presented at *Manhattan Area Memory Meeting*, Princeton, NJ.

Brown TI, LaRocque KF, **Favila SE**, Carr VA, Gordon AM, Bowles B, & Wagner AD (Mar 2015). Prospective representation of navigational goals in the human MTL. Poster presented at *Cognitive Neuroscience Society*, San Francisco, CA.

**Favila SE**, Chanales AJH, & Kuhl BA (Nov 2014). High discrimination demands reduce interference during later learning. Poster presented at *Society for Neuroscience*, Washington, DC.

Carr VA, Bernstein JD, **Favila SE**, Wagner AD, & Kerchner GA (Nov 2013). Individual differences in associative memory among older adults predicted by high-resolution MRI metrics of hippocampal structure and function. Talk presented at *Society for Neuroscience*, San Diego, CA.

Carr VA, Bernstein JD, **Favila SE**, Wagner AD, & Kerchner GA (Jul 2013). High-resolution imaging of medial temporal lobe subfield structure and function in Mild Cognitive Impairment. Poster presented at *Alzheimer's Association International Conference*, Boston, MA.

Carr VA, **Favila SE**, Arena D, Bailenson JN, & Wagner AD (Oct 2012). Modulation of medial temporal lobe activity by reward value during virtual navigation: A high-resolution fMRI study. Talk presented at *Society for Neuroscience*, New Orleans, LA.

Carr VA, **Favila SE**, Bernstein JD, Wagner AD, & Kerchner GA (Jul 2012). Successful associative memory formation and retrieval in healthy older adults is associated with hippocampal subfield activation. Poster presented at *Alzheimer's Association International Conference*, Vancouver, BC.

Carr VA, **Favila SE**, & Wagner AD (Nov 2010). High-resolution investigation of relational pattern separation in the medial temporal lobe using a rapid fMR-adaptation approach. Poster presented at *Society for Neuroscience*, San Diego, CA.

Carr, VA, **Favila SE**, & Wagner AD (Apr 2010). High-resolution fMRI of relational pattern

separation in the human medial temporal lobe. Poster presented at *Cognitive Neuroscience Society*, Montreal, QC.

## RESEARCH ADVISING

### *Undergraduate*

2022–	Shelton Brister	Columbia School of General Studies
2020–2022	Kaylee Wang	Columbia College, Psychology Honors Thesis
2020	Alyssa Levy	Binghamton University Visiting Student

## TEACHING

Fall 2016	Teaching Assistant	Cognitive Neuroscience (NYU PSYCH–UA 25)
Fall 2015	Teaching Assistant	Perception (NYU PSYCH–UA 22)

## SERVICE AND OUTREACH

2022–	Columbia Summer Internship Program in Psychological Science, Mentor
2020–	Científico Latino Graduate Student Mentorship Initiative, Reviewer/Interviewer
2017–2018	NYU Graduate School of Arts and Sciences Mentorship Program, Mentor
2008–2011	Palo Alto Unified School District AVID Program, Tutor

## REVIEWING

<i>Cerebral Cortex</i>	<i>Journal of Neuroscience</i>
<i>eLife</i>	<i>Plos Computational Biology</i>
<i>Journal of Cognitive Neuroscience</i>	<i>Science Advances</i>

## PROFESSIONAL SOCIETIES

2018–	Vision Sciences Society
2013–	Cognitive Neuroscience Society
2010–	Society for Neuroscience