

# Serra E. Favila

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## Academic Appointments

starting 2024    Assistant Professor, Brown University  
Department of Cognitive, Linguistic, and Psychological Sciences

2019-2024    Postdoctoral Research Scientist, Columbia University  
Department of Psychology

## Education

2013-2019    PhD, New York University  
Psychology (Cognition and Perception Program)

2007-2011    BA, Stanford University  
Human Biology, with Honors and Distinction

## Awards & Fellowships

2023    Postdoctoral Fellow Award, Cognitive Neuroscience Society

2020    Elsevier/Vision Research Travel Award, Vision Sciences Society

2017-2024    NIH Blueprint Diversity (D-SPAN) F99/K00 Award

2016-2017    NIH/NEI Visual Neuroscience Traineeship T32EY007136

2013-2016    Opportunity Fellowship, New York University

2013-2016    Graduate Research Fellowship, National Science Foundation

2011    Joshua Lederberg Award for Academic Excellence in Human Biology, Stanford

2011    Chicano/Latino Community Scholar Prize for Academic Excellence, Stanford

2007    National Merit Scholar

## Grants

- 2020-2024      NIH/NEI K00EY031607 - NIH Blueprint Diversity (D-SPAN) Award (postdoctoral)  
*Neural mechanisms for memory-guided visual behavior in humans*  
 Role: PI      \$313,424 total direct costs awarded
- 2017-2019      NIH/NINDS F99NS105223 - NIH Blueprint Diversity (D-SPAN) Award (predoctoral)  
*Spatiotemporal dynamics of episodic memory retrieval*  
 Role: PI      \$73,050 total direct costs awarded

## Publications

### JOURNAL ARTICLES

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

+Top 25 *Nature Communications* social science and human behavior articles of 2022

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*, 17, 151-152. [Invited commentary on Borota et al. 2014].

## PREPRINTS

**Favila SE** & Aly M. Hippocampal differentiation of competing memories predicts the precision of preparatory coding in visual cortex. *bioRxiv*. doi: <https://doi.org/10.1101/2023.10.09.561548>.

Wang S-F, Carr VA, **Favila SE**, Bailenson JN, Brown TI, Jiang J, & Wagner AD. Representations of local spatial information in the human medial temporal lobe during memory-guided navigation. *bioRxiv*. doi: <https://doi.org/10.1101/2020.11.18.389346>.

## Invited Talks

Mar 2023	New York University	Cognition & Perception Seminar
Feb 2023	Northwestern University	Psychology Colloquium
Jan 2023	Brown University	Cognitive, Linguistic, & Psychological Sciences Colloquium
Jan 2023	Cornell University	Psychology Colloquium
Jun 2022	Max Planck 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 (May 2023). Hippocampal and visual cortex contributions to resolving competition during memory-guided attention. Poster at *Vision Sciences Society*, St Pete Beach, FL.

**Favila SE** & Aly M (Mar 2023). Hippocampal differentiation and visual cortex anticipation resolve competition during memory-guided attention. Poster at *Cognitive Neuroscience Society*, San Francisco, CA.

+Postdoctoral Fellow Award

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

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

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

+Elsevier/Vision Research Travel Award

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

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

**Favila SE**, Kuhl BA, & Winawer J (May 2019). Long-term spatial memory representations in human visual cortex. Talk 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 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 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 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 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 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 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 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 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 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 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 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 at *Cognitive Neuroscience Society*, San Francisco, CA.

**Favila SE**, Chanales AJH, & Kuhl BA (Nov 2014). High discrimination demands reduce interference during later learning. Poster 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 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 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 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 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 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 at *Cognitive Neuroscience Society*, Montreal, QC.

## Mentorship

### UNDERGRADUATE HONORS THESES

Kaylee Wang (Columbia '22, Psychology)

### UNDERGRADUATE RESEARCH ASSISTANTS

*Columbia*

Shelton Brister (2022-2023)

Kaylee Wang (2020-2022)

Alyssa Levy (2020)

### OTHER ACTIVITIES

2020-	Mentor/Mock Interviewer, Científico Latino Graduate Student Mentorship Initiative
2022	Mentor, Columbia Summer Internship Program in Psychological Science
2017-2018	Mentor, NYU Graduate School of Arts and Sciences Mentorship Program

## Teaching

### TEACHING ASSISTANT

Fall 2016      NYU PSYCH-UA 25: Cognitive Neuroscience  
Fall 2015      NYU PSYCH-UA 22: Perception

## Professional Service

### AD HOC REVIEWING – JOURNALS

<i>Cell Reports</i>	<i>Journal of Neuroscience</i>
<i>Cerebral Cortex</i>	<i>NeuroImage</i>
<i>Communications Psychology</i>	<i>Plos Computational Biology</i>
<i>Current Research in Behavioral Sciences</i>	<i>Plos One</i>
<i>eLife</i>	<i>Science Advances</i>
<i>Journal of Cognitive Neuroscience</i>	

### AD HOC REVIEWING – GRANTS

National Science Foundation

### SOCIETY MEMBERSHIPS

Association for Psychological Science  
Cognitive Neuroscience Society  
Psychonomic Society  
Society for Neuroscience  
Vision Sciences Society

## Media Coverage

Press for Favila, Kuhl, & Winawer (2022):

“How the Brain Distinguishes Memories from Perceptions”, *Quanta Magazine*, Dec 2022  
Reprinted in *Wired* and featured on the *Quanta Science Podcast*