Serra E. Favila

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Cognitive & Psychological Sciences
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Academic Appointments

2024– **Brown University**, Providence, RI
Assistant Professor, Department of Cognitive & Psychological Sciences

2019–2024 **Columbia University**, New York, NY
Postdoctoral Research Scientist, Department of Psychology

Education

2013–2019 **New York University**, New York, NY
Ph.D. in Psychology (Cognition & Perception)

2007–2011 **Stanford University**, Stanford, CA
B.A. in Human Biology, with Honors and Distinction

Awards & Fellowships

2024 Rising Star, Association for Psychological Science
2023 Postdoctoral Fellow Award, Cognitive Neuroscience Society
2020 Elsevier/Vision Research Travel Award, Vision Sciences Society
2017–2024 D-SPAN F99/K00 Award, NIH Blueprint and BRAIN Initiative
2016–2017 Visual Neuroscience Traineeship, NIH/NEI T32EY007136
2013–2016 Graduate Research Fellowship, National Science Foundation
2013–2016 Opportunity Fellowship, New York University
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 and BRAIN Initiative D-SPAN K00 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 and BRAIN Initiative D-SPAN F99 Award (predoctoral)
Spatiotemporal dynamics of episodic memory retrieval
Role: PI $73,050 total direct costs awarded

Publications

Preprints

Favila SE & Aly M (under review). Hippocampal mechanisms resolve competition in memory and perception. Preprint available on *bioRxiv*: https://doi.org/10.1101/2023.10.09.561548.

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].

Invited Seminars & Colloquia

Mar 2025	Rotman Research Institute	Research Rounds Series
Sep 2024	University of Virginia	Cognitive Area Brown Bag
May 2024	Multi-Institute	Innovators in Cognitive Neuroscience Seminar
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
Apr 2020	Dartmouth University	Brain Imaging Center fMRI Brown Bag

Invited Conference & Workshop Talks

Jan 2025 Transformations in neural population tuning during visual memory. Session Speaker at *Park City Winter Conference on the Neurobiology of Learning and Memory*. Park City, UT.

Jul 2024 Eye movements as a window to cognition and the brain. Minisymposium Speaker at *IEEE Engineering in Medicine and Biology Society*, virtual.

Chaired Symposia

Mar 2025 Co-Chair, Interactions between the brain's visual and memory systems: Recent advances and new perspectives. Forthcoming Symposium at *Cognitive Neuroscience Society*. Participants: Brett Foster, Biyu He, Adam Steel (Co-Chair). Boston, MA.

Contributed Conference Presentations

Favila SE & Aly M (Nov 2024). Resolving competition in long-term memory-guided visual attention. Talk at *Psychonomic Society*, New York, NY.

Favila SE, Mohan UR, & Jacobs J (Oct 2024). Coordinated traveling waves between the MTL and neocortex support memory encoding. Poster at *Society for Neuroscience*, Chicago, IL.

Choudhary S, Cui A, **Favila SE**, Talsania S, Yeager L, Rosenberg S, & Thakoor KA (May 2024). Detection of subtle differences in normal vs anisometropic eye movements. Poster at *Association for Research in Vision and Opthalmology*, Seattle, WA.

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*, Vancover, 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.

Mentoring & Advising

Postdoctoral Fellows

Futing Zou (2024–)
Jae-Young Son (2024–)

Research Staff

Daniel Carstensen (2024–)

Undergraduates

Honors Thesis Advisees

Kaylee Wang (Columbia '22, Psychology)

Research Assistants

Brown University: Ziqi Shen (2025–), Lloyd-Sho Akai-Dennis (2024–), Hannah Alcasid (2024–), Julia Gu (2024–), Nora Landry (2024–)

Columbia University: Shelton Brister (2022–2023), Kaylee Wang (2020–2022), Alyssa Levy (2020)

Graduate Committees

First Year Project Committees

Molina Zhang (2024)

Preliminary Exam Committees

Wen Jian (2024)

External Dissertation Committees

Wangjing Yu (Columbia University, 2024)

Teaching

Instructor

2024– Brown CLPS 1480I: Memory, Space, and the Hippocampus
Enrollment: 20

Teaching Assistant

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

University & Departmental Service

2024– Member, CoPsy DIAP Subcomittee on Curriculum and Teaching
2024– Member, MRI Research Facility Safety, Education, and Training Committee
2024–2025 Member, CoPsy Open Area Faculty Search Committee

Professional Service

Ad Hoc Reviewing – Journals

Cell Reports
Cerebral Cortex
Communications Psychology
Current Biology
Current Research in Behavioral Sciences
eLife
eNeuro
Journal of Cognitive Neuroscience
Journal of Neuroscience
Nature Communications
Nature Reviews Psychology
NeuroImage
Neuropsychologia
Plos Computational Biology
Plos One
Psychonomic Bulletin & Review
Science Advances

Ad Hoc Reviewing – Grants

National Science Foundation Cognitive Neuroscience Program
UK Biotechnology and Biological Sciences Research Council

Society Memberships

Association for Psychological Science
Cognitive Neuroscience Society
Memory Disorders Research Society (elected)
Psychonomic Society
Society for Neuroscience
Vision Sciences Society

Scientific Outreach

2020–2023	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

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*