

Hannah Small

Curriculum Vitae

Cognitive Science Department
Johns Hopkins University
✉ hsmall2@jhu.edu

Education

- 2021–present **PhD, Cognitive Science**, *Johns Hopkins University*, Baltimore, MD.
Concentration in Computational Cognitive Science, Advisor: Dr. Leyla Isik
- 2014–2018: **Bachelor of Science, Biology (with Honors)**, *University of Richmond*, Richmond, VA.
Computer Science minor, Phi Beta Kappa, Major GPA: 4.00/4.00, Overall GPA: 3.94/4.00

Publications

Conference Proceedings

- 2024 **Hannah Small**, H. Lee Masson, S.H. Mostofsky, and L. Isik. Vision and language representations in multimodal ai models and human social brain regions during natural movie viewing. In *Proceedings of UniReps: the Second Workshop on Unifying Representations in Neural Models*, Proceedings of Machine Learning Research. PMLR, forthcoming, December 2024.

Journal Articles

- 2024 O. Ozernov-Palchik, A.M. O'Brien, E. Lee, H. Richardson, R. Romeo, B. Lipkin, **Hannah Small**, J. Capella, A. Nieto-Castañón, R. Saxe, J. D. E. Gabrieli, and E. Fedorenko. Precision fMRI reveals that the language network exhibits adult-like left-hemispheric lateralization by 4 years of age, June 2024. Preprint, under review.
- 2022 G. Tuckute, A. Paunov, H. Kean, **Hannah Small**, Z. Mineroff, I. Blank, and E. Fedorenko. Frontal language areas do not emerge in the absence of temporal language areas: A case study of an individual born without a left temporal lobe. *Neuropsychologia*, volume 169, page 108184, 2022.
- 2022 B. Lipkin, G. Tuckute, J. Affourtit, **Hannah Small**, Z. Mineroff, H. Kean, O. Jouravlev, L. Rakovecic, B. Pritchett, M. Siegelman, C. Hoeflin, A. Pongos, I. A. Blank, M. K. Struhl, A. Ivanova, S. Shannon, A. Sathe, M. Hoffmann, A. Nieto-Castañón, and E. Fedorenko. Probabilistic atlas for the language network based on precision fmri data from >800 individuals. *Scientific Data*, volume 9, page 529. Nature Publishing Group, 2022.
- 2022 J. Hu*, **Hannah Small***, H. Kean, A. Takahashi, L. Zekelman, D. Kleinman, E. Ryan, A. Nieto-Castañón, V. Ferreira, and E. Fedorenko. Precision fmri reveals that the language-selective network supports both phrase-structure building and lexical access during language production. *Cerebral Cortex*,, pages 1–21, 2022.
- 2018 A. Corbin, **Hannah Small**, L.M. Boland, and C. Villalba-Galea. A *Xenopus* oocyte model system to study action potentials. *Journal of General Physiology*, volume 150, pages 1583–1593, 2018.

Presentations

Talks

- 2024 *Invited talk*: Social visual and language processing during a naturalistic movie, Ohio State University, Neuroimaging Workshop, October 2024
- 2024 *Invited talk*: An investigation into simultaneous visual and linguistic processing during a naturalistic movie, Kennedy Krieger Institute, Center for Neurodevelopmental and Imaging Research, September 2024

Posters

- 2024 **Hannah Small**, H. Lee Masson, E. Wodka, S.H. Mostofsky, and L. Isik. Social regions support both visual and linguistic representations during processing of a naturalistic movie. In *Cognitive Computational Neuroscience*, 2024.
- 2024 **Hannah Small**, H. Lee Masson, E. Wodka, S.H. Mostofsky, and L. Isik. From point light displays to rich social narratives: neural representations of visual social processing in the superior temporal sulcus. In *Vision Sciences Society*, 2024.
- 2024 **Hannah Small**, H. Lee Masson, S.H. Mostofsky, and L. Isik. Vision and language representations in multimodal ai models and human social brain regions during natural movie viewing. In *BRAIN NeuroAI workshop*, 2024.
- 2023 **Hannah Small** and L. Isik. Lateralization of dynamic social interaction perception. In *Vision Sciences Society*, 2023.
- 2023 C. Casto, B. Lipkin, **Hannah Small**, A. D'Mello, and E. Fedorenko. A detailed functional characterization of cerebellar language-responsive brain areas. In *Society for the Neurobiology of Language*, 2023.
- 2022 M. Varkanitsa, A. Billot, **Hannah Small**, I. Falconer, K. Panlilio, N. Jhingan, A. Combs, R. Ryskin, and S. Kiran. Social cognition in aphasia: Preliminary evidence. In *Academy of Aphasia*, 2022.
- 2022 O. Ozernov-Palchik, A. M. O'Brien, R. Romeo, **Hannah Small**, B. Lipkin, J. Capella, and J.D.E. and E. Fedorenko Gabrieli. A developmental investigation of the language network in the brain. In *Society for the Neurobiology of Language*, 2022.
- 2020 **Hannah Small**, B. Lipkin, J. Affourtit, A. Pongos, and E. Fedorenko. Differential selectivity of the left and right hemisphere language regions for non-linguistic processing. In *Society for the Neurobiology of Language*, 2020.
- 2020 J. Affourtit, **Hannah Small**, Z. Mineroff, and E. Fedorenko. In defense of individual-level functional neural markers. In *Society for the Neurobiology of Language*, 2020.
- 2017 **Hannah Small**, A. Corbin, L.M. Boland, and C. Villalba-Galea. Using excitable oocytes to investigate the role of potassium channels in action potentials. In *Society for Neuroscience*, 2017.
- 2016 **Hannah Small**, A. Corbin, L.M. Boland, and C. Villalba-Galea. Differential regulation of action potentials by potassium channels. In *Society for Neuroscience*, 2016.

Research Experience

Massachusetts Institute of Technology

July 2019 – **Technical Associate**, Cambridge, MA.

June 2021 Led several projects understanding the representations and underlying computations that are involved in human language ability, including production/comprehension, social cognition, and executive function. Advisor: Dr. Evelina Fedorenko

University of Richmond

May 2015 – **Electrophysiology Research Assistant**, Richmond, VA.

May 2018 Developed a model of potassium ion channel regulation of action potentials. Advisor: Dr. Linda M. Boland

Fellowships & Awards

2024 **National Eye Institute Early Career Scientist Travel Grant** to attend Vision Sciences Society conference

2023–2026 **National Science Foundation Graduate Research Fellowship** Cognitive Neuroscience

2021–2024 **Owen Scholar Fellowship** awarded for being an exceptional applicant to Cognitive Science department.

2016–2018 **Beckman Scholar Award** awarded for quality and creativity of research and potential.

- 2015 **HHMI Research Student Grant** awarded for summer research investigating ion channel properties using electrophysiology.
- 2014 **Robins Science Scholar** awarded for excellence in science to attend University of Richmond on a full scholarship plus room and board.

Academic Honors

- 2018 **Biology Senior Research Award** Dept. of Biology, University of Richmond, given to the senior with the most outstanding research.
- 2017 **Phi Beta Kappa** Epsilon chapter

Service

- 2021–present **Co-Lead of PhD Application Mentorship and Climate Committee**, Johns Hopkins University.
- 2022–present **Member, Diversity and Representation Committee**, Johns Hopkins University.
- 2017–2018 **Co-Founder of Women in Math and Science Mentoring Group**, University of Richmond.

Teaching

- Fall, 2023: **TA: Computational Social Cognition**, Johns Hopkins University.
- Fall, 2022: **TA: Computational Social Cognition**, Johns Hopkins University.
- Spring, 2022: **TA: Introduction to Cognitive Neuroscience**, Johns Hopkins University.
- 2015–2016: **Tutor: Integrated Quantitative Sciences**, University of Richmond.