HALIE A. OLSON

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POSITIONS

Postdoctoral Researcher 2023 –
McGovern Institute for Brain Research
Massachusetts Institute of Technology, Cambridge MA
PIs: Evelina Fedorenko and Rebecca Saxe

EDUCATION

Massachusetts Institute of Technology, Cambridge MA 2017 – 2023
Ph.D. in Neuroscience
Advisors: John Gabrieli and Rebecca Saxe
Dissertation: *Development of language in the minds and brains of children.*
Available at: https://dspace.mit.edu/handle/1721.1/152561

Harvard College, Cambridge MA 2013 – 2017
A.B. in Neurobiology (Mind, Brain, and Behavior track), *summa cum laude*
Honors Thesis Advisor: Charles Nelson
Undergraduate Thesis: *Early Biomarkers for Anxiety: An event-related potential study on emotional face processing and internalizing behaviors in three-year-olds.*

GRANTS & FUNDING

NIH F32 Ruth L. Kirschstein Postdoctoral Individual National Research Service Award (NRSA) 2025 –
National Institutes of Health
NSF Graduate Research Fellowship (GRFP) 2018 – 2023
National Science Foundation
Garvey Graduate Student Fellowship 2019 – 2020
Brain & Cognitive Sciences, Massachusetts Institute of Technology
Singleton Fellowship 2017 – 2018, 2018 – 2019
Brain & Cognitive Sciences, Massachusetts Institute of Technology
Mary Gordon Roberts Mind/Brain/Behavior Summer Research Fellow ($1700) 2016
Harvard College
Harvard College Research Program Grant ($1700) 2016
Harvard College
National Merit Scholarship ($2500) 2013

AWARDS

The Transmitter Rising Star of Neuroscience Award 2025
McGovern Travel & Technology Award ($2500) 2024
MIT Open Data Prize ($2500) 2023
MIT UROP Outstanding Mentor Award – Graduate Student 2023
Walle Nauta Award for Excellence in Undergraduate Teaching 2020
MIT Spot Award 2020, 2022
Sophia Freund Prize, for highest grade point average in graduating class ($1000) 2017
Highest Honors in Neurobiology 2017
Phi Beta Kappa 2016
Detur Book Prize 2014

PUBLICATIONS

*Joint first authorship; †Undergraduate mentee

EMPIRICAL PAPERS

1. ***Olson, H.**, *Ozernov-Palchik, O., Arechiga, X., & Gabrieli, J. (*accepted*). Remote text-supplemented audiobook intervention supports children's explicit and incidental vocabulary learning. *Developmental Science*, *in press*.

2. ***Olson, H. A.**, *Johnson, K. T., Nishith, S., Frosch, I. R., Gabrieli, J. D. E., & D'Mello, A. M. (2024). Personalized Neuroimaging Reveals the Impact of Children's Interests on Language Processing in the Brain. *Imaging Neuroscience*, *2*: 1–14. https://doi.org/10.1162/imag_a_00339

3. **Olson, H. A.**, Chen, E. M., Lydic, K. O., & Saxe, R. R. (2023). Left-hemisphere cortical language regions respond equally to observed dialogue and monologue. *Neurobiology of Language*, *4*(4), 575-610. https://doi.org/10.1162/nol_a_00123

4. Treves, I. N., **Olson, H. A.**, Ozernov-Palchik, O., Li, C. E., Wang, K. L., Arechiga, X. M., Goldberg, S. B., & Gabrieli, J. D. E. (2023). At-home use of app-based mindfulness for children: A randomized active-controlled trial. *Mindfulness, 14*(11), 2728-2744. https://doi.org/10.1007/s12671-023-02231-3

5. Treves, I. N., Li, C. E., Wang, K. L., Ozernov-Palchik, O., **Olson, H. A.**, & Gabrieli, J. D. E. (2023). Mindfulness supports emotional resilience in children during the COVID-19 pandemic. *Plos one*, *18*(7), e0278501. https://doi.org/10.1371/journal.pone.0278501

6. Romeo, R. R., Perrachione, T. K., **Olson, H. A.**, Halverson, K. K., Gabrieli, J. D. E., & Christodoulou, J. A. (2022). Socioeconomic dissociations in the neural and cognitive bases of reading disorders. *Developmental Cognitive Neuroscience, 58,* 101175. https://doi.org/10.1016/j.dcn.2022.101175

7. Richardson, H., Koster-Hale, J., Caselli, N., Magid, R., Benedict, R., **Olson, H**., Pyers, J., & Saxe, R. (2020). Reduced neural selectivity for mental states in deaf children with delayed exposure to sign language. *Nature Communications*, *11*(1), 1-13. https://doi.org/10.1038/s41467-020-17004-y

REVIEWS & PAPERS RELATED TO INCREASING METHODOLOGICAL RIGOR

8. †Santi, B., †Soza, M., Tuckute, G., Sathe, A., Fedorenko, E., & **Olson, H.** (2026). An automated pipeline for efficiently generating standardized, child-friendly audiovisual language stimuli. *Developmental Cognitive Neuroscience*, 101674. https://doi.org/10.1016/j.dcn.2026.101674

9. Behm, L., Yates, T. S., Trach, J. E., Choi, D., Du, H., Osumah, C., Deen, B., Kosakowski, H. L., Chen, E. M., Kamps, F. S., **Olson, H. A.**, Ellis, C. T., Saxe, R., & Turk-Browne, N. B. (2026). Data retention in awake infant fMRI: Lessons from more than 750 scanning sessions. *Infancy*, *31*(1), e70062. https://doi.org/10.1111/infa.70062

10. **Olson, H.A.**, Day, T.K., Hiersche, K.J., Manning, B.L., Bradley, H., Choi, S., Abdurokhmonova, G., McCormick, S.A., Conrad, A.L., Scheinost, D. & Vaughn, K.A., (2025). Utilizing functional neuroimaging to study early language development. *Developmental Cognitive Neuroscience*, 101641. https://doi.org/10.1016/j.dcn.2025.101641

11. ***Olson, H. A.**, *Camacho, M. C., Abdurokhmonova, G., Ahmad, S., Chen, E. M., Chung, H., Di Lorenzo, R., Dineen, Á. T., Ganz, M., Licandro, R., Magnain, C., Marrus, N., McCormick, S. A., Rutter, T. M., Wagner, L., Woodruff Carr, K., Zöllei, L., §Vaughn, K. A., §Skak Madsen, K. (2025). Measuring and interpreting individual

differences in fetal, infant, and toddler neurodevelopment. *Developmental Cognitive Neuroscience,* 101539. https://doi.org/10.1016/j.dcn.2025.101539 § *indicates shared senior authorship*

12. *Margolis, E. T., *Nelson, P. M., Fiske, A., Champaud, J. L. Y., **Olson, H. A.**, Gomez, M. J. C., Dineen, Á. T., Bulgarelli, C., Troller-Renfree, S., V., Donald, K. A., Spann, M. N., Howell, B., Scheinost, D., Korom, M. (2025). Modality-Level Obstacles and Initiatives to Improve Representation in Fetal, Infant, and Toddler Neuroimaging Research Samples. *Developmental Cognitive Neuroscience*, 101505. https://doi.org/10.1016/j.dcn.2024.101505

13. *Ozernov-Palchik, O., ***Olson, H. A.**, Arechiga, X. M., Kentala, H., †Solorio-Fielder, J. L., Wang, K. L., Torres, Y. C., Gardino, N. D., Dieffenbach, J. R., & Gabrieli, J. D. E. (2022). Implementing Remote Developmental Research: A Case Study of a Randomized Controlled Trial Language Intervention During COVID-19. *Frontiers in Psychology*, *12*, 6163. https://doi.org/10.3389/fpsyg.2021.734375

14. **Olson, H.** & D'Mello, A. (2022). The social brain. In *Oxford Research Encyclopedia of Psychology*. https://doi.org/10.1093/acrefore/9780190236557.013.781

PREPRINTS

15. **Olson, H. A.**, Chen, E. M., Osumah, C., Du, H., Fedorenko, E., & Saxe, R. The emergence of the language system in the toddler brain.
Preprint: https://www.biorxiv.org/content/10.64898/2026.02.26.707550v1 (2026)

16. **Olson, H. A.**, Johnson, K. T., Nishith, S., Gabrieli, J. D. E., & D'Mello, A. M. Incorporating special interests to investigate the language system in autism: A feasibility pilot fMRI study.
Preprint: https://www.biorxiv.org/content/10.1101/2025.04.04.647117v1 (2025)

PUBLICLY SHARED DATASETS

Olson, H., Chen, E., Lydic, K., & Saxe, R. (2023). MRI data from 20 adults in response to videos of dialogue and monologue from Sesame Street. OpenNeuro. [Dataset] doi:10.18112/openneuro.ds004467.v1.0.0

PRESENTATIONS

INVITED TALKS

Sheri Choi Memorial Postdoctoral Lectureship, Wu Tsai Institute, Yale University, New Haven, CT. 2026, *forthcoming*
Developmental & Cognitive Brown Bag Series, University of Virginia, Charlottesville, VA. 2025
Center for Vital Longevity's Science Luncheon Series, University of Texas at Dallas, Dallas, TX. 2025
Cognitive Brown Bag Talk Series, Dartmouth College, Hanover, NH. 2025
Integrated Language Science and Technology Seminar, University of Pennsylvania, Philadelphia, PA. 2025
Grand Rounds, Mass Eye and Ear, Boston, MA. 2025
Consortium for Interacting Minds Talk Series, Dartmouth College, Hanover, NH. 2024
Fetal-Neonatal Neuroimaging Developmental Science Center Lecture Series, Boston Children's Hospital, MA. 2024
Invited lab meeting speaker. Cameron Ellis Lab, Stanford University, Stanford, CA. (Virtual) 2024
Invited speaker. Lloyd Institute, Trinity College, Dublin, Ireland. 2024
Invited lab meeting speaker. Tali Sharot Lab, University College London/MIT, Cambridge, MA. (Virtual) 2024
Language & Cognition Series, Harvard University, Cambridge, MA. 2024
Simons Center for the Social Brain Lunch Series, MIT, Cambridge, MA. 2023
Invited lab meeting speaker. Hilary Richardson Lab, University of Edinburgh, Scotland, UK. (Virtual) 2023
Invited lab meeting speaker. Nick Turk-Browne Lab, Yale University, New Haven, CT. 2022
Invited lab meeting speaker. Sigal Zilcha-Mano Lab, Haifa University, Israel. 2022
Yang-Tan Research Centers Retreat. MIT, Cambridge, MA. 2022
Invited lab meeting speaker. Casey Lew-Williams Lab, Princeton University, Princeton, NJ. (Virtual) 2022
Lightning Talk: Brains on Brains. MIT, Cambridge, MA. (Virtual) 2021

Short Talk: MIT Brain and Cognitive Sciences Interview Days. MIT, Cambridge, MA. (Virtual) 2021
Invited lab meeting speaker. Ev Fedorenko Lab, MIT, Cambridge, MA. (Virtual) 2020
Invited lab meeting speaker. Ev Fedorenko Lab, MIT, Cambridge, MA. 2019

Other Talks & Conference Symposia

Olson, H. (2024). Using fMRI to Study Language Comprehension in Awake Toddlers. Symposium Title: Innovations in Toddler Functional MRI. *Flux Congress 2024. Baltimore, MD.*

- *Role: Chair, Presenter, Moderator*

Olson, H. (2023). Language-evoked activation in the brains of awake toddlers. Symposium Title: Unveiling the Neural Substrates of Early Language Development through Precision fMRI. *Society for the Neurobiology of Language Conference 2023. Marseille, France.*

- *Role: Presenter*

Ozernov-Palchik, O. & **Olson, H.** (2022). Implementing Remote Developmental Research: A Case Study of an RCT Language Intervention During COVID-19.
Implementation Science IS For All: A CSD Practice-Research Exchange Conference. Lightning Talk: Virtual Conference.

Olson, H. (2022). Experimentally-controlled naturalistic neuroimaging: Using Sesame Street to examine language processing in the brain.
Cog Lunch Seminar Series. MIT, Cambridge, MA.

Olson, H. (2021) Impact of delayed access to language on the brain's language network.
Cog Lunch Seminar Series. MIT, Cambridge, MA. (Virtual)

Olson, H. (2019) Neural correlates of infant statistical learning.
Cog Lunch Seminar Series. MIT, Cambridge, MA.

Olson, H. (2018) Audiovisual Synchrony Preference and Prefrontal Cortical Activity in Infants: an fNIRS study.
Cog Lunch Seminar Series. MIT, Cambridge, MA.

Selected Posters

*Joint first authorship; †Undergraduate or high schooler mentee

†Santi, B., **Olson, H.**, †Soza, M., †Seitz-Shewmon, S., Tuckute, G., Sathe, A., & Fedorenko, E. (2024). A Pipeline for Creating Standardized, Child-Friendly Audiovisual Language Stimuli for Neuroimaging Experiments. *Flux Congress 2024. Baltimore, MD.*

Olson, H., Chen, E., †Saba, S., & Saxe, R. (2023). Measuring language-evoked activation in the brains of awake toddlers using fMRI. *Fetal, Infant, & Toddler Neuroimaging Group Conference 2023. Santa Rosa, CA.*

Olson, H., Chen, E., Lydic, K., †Saba, S., & Saxe, R. (2022). Using fMRI to study language regions in a conversational context. *Society for the Neurobiology of Language Conference 2022. Philadelphia, PA.*

- *Selected for Poster Slam.*

*D'Mello, A. M., ***Olson, H. A.**, *Johnson, K. T., & Gabrieli, J. D. E. (2022). Personalized neuroimaging sheds insight into the role of motivation in language processing. *Society for the Neurobiology of Language Conference 2022. Philadelphia, PA.*

Olson, H., Chen, E., Lydic, K., †Saba, S., & Saxe, R. (2022). LIT: An awake fMRI language task for toddlers. *Fetal, Infant, & Toddler Neuroimaging Group Conference 2022. Paris, France.*

Olson, H., Chen, E., Lydic, K., †Saba, S., & Saxe, R. (2022). Experimentally-controlled and naturalistic neuroimaging task to study language development. *Poster: Flux Congress 2022. Paris, France*.

***Olson, H.,** *Ozernov-Palchik, O., Arechiga, X., Wang, K., Dieffenbach, J., & Gabrieli, J. D. E. (2022). A Remote Randomized Controlled Trial Audiobook Intervention. *International Mind, Brain, & Education Society Conference 2022. Poster: Montreal, Canada.*

Olson, H., Chen, E., †Ro, H., †Saba, S., Lydic, K., & Saxe, R. (2022). Validating child-friendly neuroimaging language localizer in adults. *42nd Annual Virtual Meeting of the Cognitive Science Society. Poster: Toronto, Canada.*

*D'Mello, A. M., ***Olson, H. A.**, *Johnson, K. T., & Gabrieli, J. D. E. (2022). Let's Talk about Trains: Personalized Stories about Special Interests Increase Language Network Activation in Children with and without ASD. *2022 International Meeting for Autism Research. Poster: Austin, TX.*

Olson, H., Powell, L., & Saxe, R. (2020). Measuring neural correlates of infant statistical learning using functional near-infrared spectroscopy. *42nd Annual Virtual Meeting of the Cognitive Science Society. Poster: Virtual conference due to COVID-19.*

Olson, H., Richardson, H., Koster-Hale, J., Caselli, N., Magid, R., Benedict, R., Pyers, J., & Saxe, R. (2020). Child and adult cortical selectivity for English and American Sign Language using fMRI. *Cognitive Neuroscience Society. Poster: Virtual conference due to COVID-19.*

Olson, H. (2017). Early Biomarkers for Anxiety: An event-related potential study on emotional face processing and internalizing behaviors in three-year-olds. *Mind, Brain, Behavior Poster Session. Poster: Harvard University, Cambridge, MA.*

Olson, H. (2017). Early Biomarkers for Anxiety: An event-related potential study on emotional face processing and internalizing behaviors in three-year-olds. *Neuroscience and Mental Health Poster Session. Poster: Harvard University, Cambridge, MA.*

TEACHING

Guest Lectures

Harvard University, "Stress & Cognition" Undergraduate Seminar
- Lecture title: "Stress and the developing brain" 2025

Georgia Institute of Technology, "Human Language Processing" Undergraduate Course
- Lecture title: "Language development and the brain" 2024, 2025 (x2), 2026

University of Texas at Dallas, "Brain and Language" Graduate Seminar
- Lecture title: "Language in the developing brain" 2024
- Lecture title: "Experience and the language system" 2025

Northeastern University, "Neuroscience of Language" Undergraduate Seminar
- Lecture title: "Language in the developing brain" 2023

MIT: Teaching Assistant

- Undergraduate/Graduate Course: "Language in the Mind and Brain" 2026
- Undergraduate Course: "Introduction to Psychological Science" 2019, 2020, 2021

MIT: BCS Teaching Development Fellow 2021 – 2022

Provided teaching support for graduate students in the Brain and Cognitive Sciences department. Organized check ins with Teaching Assistants, workshops, and other initiatives to develop teaching and mentorship skills, including:

- **Brain and Cognitive Sciences Teach Off**, MIT 2022
- **Effective Teaching Toolkit Workshop**, MIT 2022
- **Undergraduate Research Mentorship Workshop**, MIT 2021

MIT 9.00x: Course Developer 2019 - 2022

Developed an online three-lecture mini-module for MIT course 9.00: Introduction to Psychological Science through the MITx platform. Responsibilities include curriculum design, content development, and classroom implementation in Spring 2020 and Spring 2021.

MIT ESP: Volunteer Teacher 2017 – 2019

Organized and co-taught various courses for middle and high school students in the greater Boston community, including:

- "Babies and Brains" – MIT Splash (high school students, weekend course, Fall 2017 & 2018)
- "Babies and Brains" – MIT Spark (middle school students, weekend course, Spring 2018)
- "Memory and Mind Control: An Introduction to Neuroscience" – MIT Spring HSSP (middle school students, 7-session course, Spring 2018)
- "The Foundations of Intelligence: An Introduction to Neuroscience" – MIT Summer HSSP (middle and high school, 7-session course, Summer 2018)
- "Sensational Neuroscience" – MIT Summer HSSP (middle school, Summer 2019)

SERVICE & OUTREACH

Fetal Infant Toddler Neuroimaging Society (FIT'NG): Trainee Committee Co-Chair 2022 – 2024

Work with members of the Trainee Committee to plan monthly FIT'NG Together virtual events and annual conference events geared toward junior researchers. As chair, help to run trainee committee meetings and attend broader committee meetings. Select notable events include:

- ***'Elephants in the Room'* Think Tank**, FIT'NG Conference
- ***'Modality Introduction'* Talk Series**, FIT'NG Together virtual events
- ***'Elephants in the Room'* Talk Series**, FIT'NG Together virtual events

MIT: BCS Education Committee Member 2021 – 2022

Graduate student member of the Brain and Cognitive Sciences education committee.

BCS Cog Lunch Series: Organizer 2019 – 2020

Organized weekly Cog Lunch Series for members of the MIT Brain and Cognitive Sciences department. Coordinated transition to virtual talks in Summer 2020.

Tours of Neuroimaging Center: Neuroscientist Representative, MIT

Assisted with various tours of the neuroimaging facilities at the Martinos Imaging Center at MIT, including:

- Summer Workshop for High School Biology Teachers 2019
- Learning and the Brain Conference 2019, 2021, 2022, 2023, 2024
- Middle School Students 2026

BCS Application Assistance Program: Mentor 2019 – 2022

Mentor applicants interested in MIT Brain and Cognitive Sciences PhD program. Correspond via email and webinar about various aspects of admissions process, including giving advice on CVs and personal statements.

Gabrieli and Saxe Labs: Summer Journal Club 2018 – 2020

Organized weekly journal club for undergraduate and high school interns.

BCS Big Sib Program: Mentor 2018 – 2019
Mentored undergraduates in the Brain and Cognitive Sciences department, including advising on academics and research.

Harvard College: Alumni Interviewer 2017 – 2022
Interviewed up to 10 high school seniors per admissions cycle.

Outreach Talks

Olson, H. (2024). Language in the Developing Brain.
Invited speaker for the Commonwealth High School all-school assembly. Boston, MA.

Olson, H. (2024). Interests in your brain.
Talk for middle school students. MIT Museum, Cambridge, MA.

Olson, H. & Camacho, M. C. (2023). Introduction to Functional MRI.
Part of the Fetal Infant Toddler Neuroimaging Group's Modality Series, through FIT'NG Together. Virtual.

Olson, H. (2019). Imaging the brain to understand the mind.
Invited speaker for "Technology and the Mind" event for high school students. MIT Museum Teen Science Café, Cambridge, MA.

Other Writing & Science Communication

Stanford Psychology Podcast, Ep. 128 2024
Interviewed for a podcast based on my research related to interests and the brain.
https://www.stanfordpsychologypodcast.com/episodes/episode/7bc7c631/128-halie-olson-how-our-brains-care-about-our-personal-interests

Olson, H. Blog Post: "Can I rewire my brain?" 2019
Guest blog post for the "Ask the Brain" series in the McGovern Institute for Brain Research Newsletter.
https://mcgovern.mit.edu/2019/09/06/can-i-rewire-my-brain/

Press

The Transmitter, "*The Transmitter*'s Rising Stars of Neuroscience 2025" 2025
https://www.thetransmitter.org/early-career-researchers/rising-stars-neuroscience-2025/

MIT News, "Personal interests can influence how children's brains respond to language" 2025
https://news.mit.edu/2025/personal-interests-can-influence-how-childrens-brains-respond-language-0107

Spectrum News, "The benefits of special interests in autism" 2021
https://www.spectrumnews.org/features/deep-dive/the-benefits-of-special-interests-in-autism/

Brain Scan, "Embracing neurodiversity to better understand autism" 2020
https://mcgovern.mit.edu/2020/03/02/embracing-neurodiversity-to-better-understand-autism/

Professional Development, Certifications, & External Coursework

Genetics & Neurobiology of Language Summer Course, Cold Spring Harbor Laboratory 2024
Ivy+ Teaching Transformation Summit 2021, 2022
Path to Professorship Workshop, MIT 2021
Kaufman Teaching Certificate Program, Teaching + Learning Lab, MIT 2021

Cambridge Writing Workshop: Member 2020 – 2022
Cognitive Neuroscience of Thought Summer Course, Neuroscience School of Advanced Studies 2019
fNIRS Training Workshop, Neurophotonics Center, Boston University 2018
Magnetic Resonance Imaging Certification, Athinoula A. Martinos Imaging Center, MIT 2018

SOCIETY MEMBERSHIPS

Current and Past Memberships: Fetal Infant and Toddler Neuroimaging Group (FIT'NG); Society for the Neurobiology of Language (SNL); Developmental Cognitive Neuroscience (Flux); International Congress of Infant Studies (ICIS); Cognitive Neuroscience Society (CNS); Cognitive Science Society (CogSci); International Society for Autism Research (INSAR)