HALIE ANN OLSON

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EMPLOYMENT

Postdoctoral Associate   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 III
Undergraduate Thesis: *Early Biomarkers for Anxiety: An event-related potential study on emotional face processing and internalizing behaviors in three-year-olds.*

GRANTS & FUNDING

NSF Graduate Research Fellowship (GRFP)   2018 – 2023
Total Costs: $138,000, *National Science Foundation*
Garvey Graduate Student Fellowship   2019 – 2020
Total Costs: Tuition + stipend support, *Brain and Cognitive Sciences, MIT*
Singleton Fellowship   2017 – 2018, 2018 – 2019
Total Costs: Tuition + stipend support, *Brain and Cognitive Sciences, MIT*
Mary Gordon Roberts Mind/Brain/Behavior Summer Research Fellow   2016
Total Costs: $1,700, *Harvard College*
Harvard College Research Program Grant   2016
Total Costs: $1,700, *Harvard College*
National Merit Scholarship   2013
Total Costs: $2,500

AWARDS

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 class ($1000)	2017
Highest Honors in Neurobiology	2017
Phi Beta Kappa	2016
Detur Book Prize	2014
John Harvard Scholar	2013 – 14, 2014 – 15, 2015 – 16

PUBLICATIONS

*Joint first authorship; †Undergraduate mentee

PEER-REVIEWED PUBLICATIONS

Olson, H., Chen, E., Lydic, K., & Saxe, R. (2023). Left-hemisphere cortical language regions respond equally to observed dialogue and monologue. *Neurobiology of Language*, 1-89. https://doi.org/10.1162/nol_a_00123

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*, 1-17. https://doi.org/10.1007/s12671-023-02231-3

Treves, I. N., Li, C. E., Wang, K. L., Ozernov-Palchik, O., **Olson, H. A.**, & Gabrieli, J. D. (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

*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

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

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

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

PREPRINTS

***Olson, H. A.**, *Johnson, K. T., Nishith, S., Frosch, I. R., Gabrieli, J. D. E., & D'Mello, A. M. (*2023 - preprint*). When the Brain Cares: Personal interests amplify engagement of language, self-reference, and reward regions in the brains of children with and without autism.
Preprint: https://www.biorxiv.org/content/10.1101/2023.03.21.533695v2

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

*Joint first authorship; †Undergraduate mentee

INVITED TALKS

Olson, H. (2023). Conversation in the brain.
Simons Center for the Social Brain Lunch Series, MIT, Cambridge, MA.

Olson, H. (2023). Conversation in the toddler brain.
Invited lab meeting speaker. Hilary Richardson Lab, University of Edinburgh, Scotland, UK. (virtual)

Olson, H. (2022). Using *Sesame Street* to study language processing: Combining experimental control with naturalistic neuroimaging.
Invited lab meeting speaker. Nick Turk-Browne Lab, Yale University, New Haven, CT.

Olson, H. (2022). Combining experimental control with naturalistic neuroimaging to study language processing.
Invited lab meeting speaker. Sigal Zilcha-Mano Lab, Haifa University, Israel.

Olson, H. (2022). Let's Talk about Trains: Stories about Special Interests Increase Language Network Activation in Children with and without ASD.
Yang-Tan Research Centers Retreat. MIT, Cambridge, MA.

Olson, H. (2022). Experimentally-controlled naturalistic neuroimaging: Using Sesame Street to examine language processing in the brain.
Invited lab meeting speaker. Casey Lew-Williams Lab, Princeton University, Princeton, NJ. (Virtual)

Olson, H. (2021). Let's talk about trains: Using special interests to study the language network in children.
Lightning Talk: Brains on Brains. MIT, Cambridge, MA. (Virtual)

Olson, H. (2021). Let's talk about trains: Using special interests to study the language network in children.
Short Talk: MIT Brain and Cognitive Sciences Interview Days. MIT, Cambridge, MA. (Virtual)

Olson, H. (2020). ASL and English in the brain: Examining effects of modality and delayed access to language.
Invited lab meeting speaker. Ev Fedorenko Lab, MIT, Cambridge, MA. (Virtual)

Olson, H. (2019). Individual differences in the neural basis of learning from language.
Invited lab meeting speaker. Ev Fedorenko Lab, MIT, Cambridge, MA.

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

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

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

MIT: Teaching Assistant	2019, 2020, 2021

- "Introduction to Psychological Science"

Guest Lectures

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

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 –

Work with members of the Trainee Committee to plan FIT'NG Together and 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   2023
- *'Basics of…'* **Talk Series**, FIT'NG Together virtual events   2023
- *'Elephants in the Room'* **Talk Series**, FIT'NG Together virtual events   2023

MIT: BCS Education Committee Member   2021 – 2022

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

BCS Cog Lunch Series   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   2019 –

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

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.

<u>OUTREACH TALKS</u>
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.

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.

<u>OTHER WRITING & SCIENCE COMMUNICATION</u>
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

Spectrum News, "The benefits of special interests in autism"   2021
Covered findings from on-going research into using special interests to potentiate the language network in children with autism spectrum disorders.
https://www.spectrumnews.org/features/deep-dive/the-benefits-of-special-interests-in-autism/

Brain Scan, "Embracing neurodiversity to better understand autism"   2020
Quarterly newsletter by the McGovern Center for Brain Research at MIT which covered ongoing research on the ability of special interests to potentiate the language network in children with autism.
https://mcgovern.mit.edu/2020/03/02/embracing-neurodiversity-to-better-understand-autism/

MIT Integrated Learning Initiative, "Q&A with Halie Olson, Graduate Student in the Gabrieli & Saxe Laboratories"   2019
https://mitili.mit.edu/news/qa-halie-olson-graduate-student-gabrieli-saxe-laboratories

PROFESSIONAL DEVELOPMENT, CERTIFICATIONS, & EXTERNAL COURSEWORK

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 –
Cognitive Neuroscience of Thought, 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