

## JULIA ANNE LEONARD

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### EMPLOYMENT

**University of Pennsylvania**  
MindCORE postdoctoral fellow

September 2018

### EDUCATION

**Massachusetts Institute of Technology**

September 2013 – May 2018

PhD in Brain and Cognitive Sciences with Dr. John Gabrieli and Dr. Laura Schulz

Thesis: *Social Influences on Children's Learning*

**Wesleyan University**

May 2011

B.A. Neuroscience and Behavior, Phi Beta Kappa, High honors, GPA: 4.0

Advisor: Anna Shusterman

Honors Thesis: *The Effects of Touch on Compliance in Preschool-Age Children*

**Hokkaido International Foundation**

Summer 2009

Hokkaido, Japan

Intensive Japanese language program

### RESEARCH INTERESTS

Cognitive development, neuroscience, learning, motivation, plasticity, resilience

### PUBLICATIONS

Romeo, R. R., Segaran, J., **Leonard, J. A.**, Robinson, S. T., West, M. R., Mackey, A. P., ... & Gabrieli, J. D. (2018). Language Exposure Relates to Structural Neural Connectivity in Childhood. *Journal of Neuroscience*, 0484-18. <https://doi.org/10.1093/scan/nsy017>

Park, A. T., **Leonard, J. A.**, Saxler, P. K., Cyr, A. B., Gabrieli, J. D., & Mackey, A. P. (2018). Amygdala–medial prefrontal cortex connectivity relates to stress and mental health in early childhood. *Social cognitive and affective neuroscience*, 13(4), 430-439. <https://doi.org/10.1093/scan/nsy017>

Romeo, R.R., **Leonard, J.A.**, Robinson, S.T., Rowe, M.L., Mackey, A.P., Gabrieli, J.D.E. (2017). The neural correlates of the “30 million word gap”: Childhood conversational exposure is associated with language-related brain function. *Psychological Science*. doi:10.1177/0956797617742725

**Leonard, J.A.**, Lee, Y., & Schulz, L.E. (2017). Infants make more attempts to achieve a goal when they see adults persist. *Science*. 357(6357), 1290-1294. doi:10.1126/science.aan2317

Shusterman, A., Cheung, P., Taggart, J., Bass, T., **Leonard, J.A.**, & Schwartz, A. (2017). Conceptual Correlates of Counting: Children's Spontaneous Matching and tracking of Large Sets Reflects their Knowledge of the Cardinal Principle. *The Journal of Numerical Cognition*, 3(1), 1-30. doi:10.5964/jnc.v3i1.65

**Leonard, J.A.**, Flournoy, J., Lewis-de los Angeles, C., & Whitaker, K. (2017). How much motion is too much motion? Determining motion thresholds by sample size for reproducibility in developmental resting-state MRI. *Research Ideas and Outcomes*, 3: e12569. doi:10.3897/rio.3.e12569

Finn, A.S., Minas, J., **Leonard, J.A.**, Mackey, A.P., Salvatore, J., Goetz, C., West, M., Gabrieli C.F.O., & Gabrieli, J.D.E. (2016). Functional brain organization of working memory in adolescents varies in relation to family income and academic achievement. *Developmental Science*. doi:110.1111/desc.12450

Cain, M.S., **Leonard, J.A.**, Gabrieli, J.D.E., & Finn, A.S. (2016). Multi-media tasking in adolescents. *Psychonomic Bulletin & Review*, 1-10. doi:10.3758/s13423-016-1036-3

Finn, A.S., Kalra, P.B., Goetz, C., **Leonard, J.A.**, Sheridan, M.A., & Gabrieli, J.D.E. (2016). Developmental dissociation between the maturation of procedural memory and declarative memory. *Journal of experimental child psychology*, 142, 212-220. doi:10.1016/j.jecp.2015.09.027

**Leonard, J.A.**, Mackey, A.P., Finn, A.S., & Gabrieli, J.D.E. (2015). Differential effects of socioeconomic status on declarative and procedural memory. *Frontiers in Human Neuroscience*, 9:554. doi:10.3389/fnhum.2015.00554

Mackey, A.P., Finn, A.S., **Leonard, J.A.**, Jacoby-Senghor, D.S., West, M.R., Gabrieli, C.F., & Gabrieli, J.D. (2015). Neuroanatomical correlates of the income-achievement gap. *Psychological science*, doi:0956797615572233

Chai, X.J., Hirshfeld-Becker, D., Biederman, J., Uchida, M., Doehrmann, O., **Leonard, J.A.**, ... & Whitfield-Gabrieli, S. (2015). Altered intrinsic functional brain architecture in children at familial risk of major depression. *Biological Psychiatry*. doi:10.1016/j.biopsych.2015.12.003

Chai, X. J., Hirshfeld-Becker, D., Biederman, J., Uchida, M., Doehrmann, O., **Leonard, J.A.**, ... & Gabrieli, J. D. (2015). Functional and structural brain correlates of risk for major depression in children with familial depression. *NeuroImage: Clinical*, 8, 398-407. doi:10.1016/j.nicl.2015.05.004

**Leonard, J.A.**, Berkowitz, T., & Shusterman, A. (2014). The effect of friendly touch on delay-of-gratification in preschool children. *The Quarterly Journal of Experimental Psychology*, 1-11, doi:10.1080/17470218.2014.907325

Plummer, D.B., Galla, B.M., Finn, A.S., Patrick, S.D., Meketon, D., **Leonard, J.A.** ... Duckworth, A.L. (2014). A behind-the-scenes guide to school-based research. *Mind, Brain, and Education*, 8(1), 15-20. doi:10.1111/mbe.12040

Finn, A.S., Kraft, M., West, M., **Leonard, J.A.**, Bisk, C., Martin, R., Sheridan, M.A., Gabrieli, C.F.O., & Gabrieli, J.D.E. (2014). Cognitive skills, student achievement tests, and schools. *Psychological Science*, 25(3), 736-44. doi: 10.1177/0956797613516008

#### SUBMITTED/ UNDER REVISION/ IN PREPARATION

**Leonard, J.A.**, Romeo, R.R., Park, A., Takada, M.E., Robinson, S.T., Grotzinger, H., Last, B.S., Finn, A.S., Gabrieli, J.D.E., & Mackey, A.P. (Submitted to Developmental Cognitive Neuroscience). *Associations between cortical thickness and reasoning vary by socioeconomic status in early childhood and adolescence*.

**Leonard, J.A.**, Garcia, A., & Schulz, L.E. (Under revision). *Practice what you preach: Children integrate adult's actions with testimony to decide how hard to try*.

**Leonard, J.A.** & Romeo, R.R., Robinson, S.T., Mackey, A.P., West, M.R., & Gabrieli, J.D.E. (in prep). *Replication report: Family-based training program to improve cognitive outcomes in low-income preschoolers*.

## CONFERENCE PRESENTATIONS

**Leonard, J.A.** Garcia, A., Chew, K., & Schulz, L.E. (2018). Practice what you preach: Children integrate adults' outcomes, actions, and testimony to decide how hard to try. Association for Psychological Sciences, San Francisco, CA.

**Leonard, J.A.** & Schulz, L.E. (2018). *Social influences on children's motivation*. Association for Psychological Sciences, San Francisco, CA.

**Leonard, J.A.**, Romeo, R.R., Mackey, A.P., Takada, M., Robinson, S., Gabrieli, J.D.E. & Schulz, L. (2017). *Predicting and Intervening on cognitive outcomes in young children*. Society for Research in Cognitive Development, Austin, TX.

Romeo, R.R., **Leonard, J.A.**, Robinson, S.T., Rowe, M.L. Mackey, A.P., Gabrieli, J.D.E. (2017). *Children's language exposure predicts neural structure and function during language processing, independent of SES*. Society for Research in Cognitive Development, Austin, TX.

**Leonard, J.A.**, Gabrieli, J.D.E., & Schulz, L.E. (2016). *Socioeconomic status and exploratory play in early childhood*. Active Learning Workshop at the Cognitive Science Society, Philadelphia, PA.

**Leonard, J.A.**, & Schulz, L.E. (2015). *If at first you don't succeed: the role of evidence in children's persistence*. More On Development, Columbus, OH.

**Leonard, J.A.**, Flyod, S., Schulz, L.E. (2015). *The Development of Implicit Theories of Effort*. The Society for Research in Cognitive Development, Philadelphia, PA.

Mackey, A.P., **Leonard, J.A.**, Finn, A.S., Gabrieli, J.D.E. (2014) *Hippocampal structure and connectivity is linked to standardized test score improvement*. Society for Neuroscience, Washington, DC.

Finn, A.S., **Leonard J.A.**, Mackey, A.P., Goetz, C.A., Salvatore, J., De los Angeles, C., Sheridan, M.A., Gabrieli, C.F.O., & John Gabrieli, G.D.E. (November, 2013). *The neural substrates associated with improvement on standardized exams during middle school*. The Society for Neuroscience, San Diego, CA.

## CONFERENCE POSTERS

**Leonard, J.A.**, Romeo, R.R., Park, A., Takada, M.E., Robinson, S.T., Grotzinger, H., Finn, A.S., Gabrieli, J.D.E., & Mackey, A.P. (2018). *Associations between cortical thickness and reasoning vary by socioeconomic status in early childhood*. Cognitive Neuroscience Society, Boston, MA.

**Leonard, J.A.**, Magid, R., Kleiman-Weiner, M., DePascale, M., Tenenbaum, J., & Schulz, L. (2017). *Preschoolers rationally deploy effort in social learning and collaborative contexts*. Cognitive Development Society, Portland, OR.

**Leonard, J.A.**, Kleiman-Weiner, M., Lee, Y., Tenenbaum, J., & Schulz, L. (2017). *Preschoolers and infants calibrate persistence from adults models*. Cognitive Development Society, London, UK.

Takada, M.E., **Leonard, J.A.**, Romeo, R.R., Robinson, S.T., Mackey, A.P., & Gabrieli, J.D.E. (2017). *Cognitive and neural correlates of mathematical reasoning across math proficiency levels*. Society for Research in Cognitive Development, Austin, TX.

Romeo, R.R., **Leonard, J.A.**, Robinson, S.T., Segaran, J., Rowe, M.L. Mackey, A.P., Gabrieli, J.D.E. (2016). *Children's language exposure predicts neural activation during language processing*. Society for Neuroscience, San Diego, CA.

**Leonard, J.A.,** Lee, Y., & Schulz, L.E. (2015). *If at first you don't succeed: the role of evidence in preschoolers' and infants' persistence*. Cognitive Development Society, Columbus, OH.

**Leonard, J.A.,** Mackey, A.P., Finn, A.S., & Gabrieli, J.D.E. (2015). *Differential effects of socioeconomic status on declarative and procedural memory*. FLUX congress, Leiden, Netherlands.

**Leonard, J.A.,** Lee, Y., & Schulz, L.E. (2015). *If at first you don't succeed: the role of evidence in preschoolers' and infants' persistence*. Cognitive Science Society, Pasadena, CA.

Mackey, A.P., Finn, A.S., **Leonard, J.A.,** Salvatore, J., Goetz, C.A., Gabrieli, J.D.E. (2014). *Cortical thickness differences associated with family income in adolescents*. Human Brain Mapping, Hamburg, Germany.

**Leonard, J.A.,** Finn, A.S., Mackey, A.P., Salvatore, J., De los Angeles, C., Goetz, C.A., Gabrieli, J.D.E., Whitfield-Gabrieli, S. (2014). *Relation of functional connectivity to cognitive abilities in adolescents from socioeconomically diverse backgrounds*. The Cognitive Neuroscience Society, Boston, MA.

**Leonard, J.A.,** Finn, A.S., Mackey, A.P., Salvatore, J., De los Angeles, C., Goetz, C.A., Gabrieli, J.D.E., Whitfield-Gabrieli, S. (2013). *Resting-state MRI in adolescents: Relation of functional connectivity to cognitive abilities and educational outcomes*. The Society for Neuroscience, San Diego, CA.

Mackey, A.P., Finn, A.S., **Leonard, J.A.,** Salvatore, J., Goetz, C.A., Gabrieli, J.D.E. (2013). *Cognitive, academic, and brain difference associated with low income backgrounds in adolescents*. The Society for Neuroscience, San Diego, CA.

Finn, A., Albert, N., **Leonard, J.A.,** Hudson Kam, C.L. (2013). *Effort in skill learning: more persistent benefits for children*. The Cognitive Neuroscience Society, San Francisco, CA.

**Leonard, J.A.,** Berkowitz, T., Shusterman, A. (2013). *The effects of touch on compliance in pre-school age children*. The Society for Research in Cognitive Development, Seattle, WA.

Finn, A., Sheridan, M.A., Salvatore, J., **Leonard, J.A.,** Gabrieli, J.D.E (2012). *Individual differences in adolescents' ability to filter items for working memory predict neural structure and function*. The Society for Neuroscience, Louisiana.

**Leonard, J.A.,** Berkowitz, T., Shusterman, A. (2011) *The effects of touch on compliance in pre-school age children*. The Cognitive Development Society, Philadelphia, PA.

## HONORS AND AWARDS

<b>Walle Nauta Award for Continued Dedication to Teaching</b> Massachusetts Institute of Technology	2017, 2018
<b>Neurohack Week Fellow</b> University of Washington eScience Institute	September 2016, 2017
<b>UCLA-Semel Institute Neuroimaging Training Program Fellow</b> UCLA	July 2016
<b>Summer Institute in Cognitive Neuroscience Fellow</b> UCSB, Developmental, computational & methodological cognitive neuroscience topics	June 2015
<b>Graduate Student Summer Travel Award</b> Massachusetts Institute of Technology	June 2015

<b>Latin America School for Education, Cognition, and Neural Sciences Fellow</b> LA school for Education, Cognition, and Neural Sciences	<i>2015, 2018</i>
<b>NSF Graduate Student Research Fellowship</b> National Science Foundation	<i>April 2014</i>
<b>Ida M. Green Graduate School Fellowship</b> Massachusetts Institute of Technology	<i>September 2013</i>
<b>High Honors in Neuroscience and Behavior</b> Wesleyan University	<i>May 2011</i>
<b>Connecticut Higher Education Community Service Award Nominee</b> State of Connecticut, Office of Higher Education	<i>April 2011</i>
<b>Dean's List</b> Wesleyan University	<i>2008, 2009, 2010, 2011</i>
<b>Phi Beta Kappa</b> Chapter of Wesleyan University	<i>November 2010</i>

#### INVITED TALKS

<b>Affective Neuroscience and Development Laboratory, Harvard University</b>	<i>2018</i>
<b>Developmental Group Talk Series, University of Pennsylvania</b>	<i>2017</i>
<b>Developmental Colloquium, Stanford University</b>	<i>2017</i>

#### TEACHING EXPERIENCE, PROFESSIONAL SERVICE, OUTREACH

<b>Teaching Assistant – Infant &amp; Childhood Cognition</b> Dr. Laura Schulz, Faculty-Of-Record, Professor of Brain and Cognitive Sciences, MIT	<i>2016</i>
<b>Teaching Assistant – Psychological Science</b> Dr. John Gabrieli, Faculty-Of-Record, Professor of Brain and Cognitive Sciences, MIT	<i>2016, 2017</i>
<b>Teaching Assistant – Cognitive Processes</b> Dr. Mary Potter, Faculty-Of-Record, Professor of Brain and Cognitive Sciences, MIT	<i>2015</i>
<b>Teaching Assistant - Research Methods in Cognitive Development and Education</b> Dr. Anna Shusterman, Faculty-Of-Record, Wesleyan University, Department of Psychology	<i>2010</i>
<b>Co-teacher – Science Pedagogy for Elementary School Students</b> Dr. Westmoreland, Dr. Roberts, Wesleyan University, Department of Chemistry	<i>2009 - 2011</i>
<b>Science Outreach Class and Club, Co-founder, leader, head teacher</b> Co-founded and led an after-school science club for five elementary schools serving low-income populations. Planned curriculum, wrote grants, and worked closely with the faculty in the Wesleyan Chemistry department. Mentored and taught 50 Wesleyan students to run the club. Planned an annual Science Saturday, a science event at Wesleyan for 30 elementary school children and their parents. Wrote grant to expand the club into a service-learning course at Wesleyan University that I co-taught with Chemistry Professors.	<i>2007 - 2011</i>

## PROFESSIONAL MEMBERSHIP

<b>Cognitive Science Society</b>	2015
<b>FLUX Congress</b>	2015
<b>Cognitive Neuroscience Society</b>	2014
<b>Society for Neuroscience</b>	2013
<b>Cognitive Development Society</b>	2011
<b>Society for Research on Cognitive Development</b>	2011
<b>Psi Chi International Honors Society of Psychology</b>	2009

## RESEARCH MENTORSHIP

### **MIT Undergraduate Mentor**

Mentor MIT undergraduates: Teach behavioral and fMRI data collection, administration and scoring of standardized psychology measures, behavioral data analysis, and writing research proposals

- Caitlin Tan, 2013, 2014
- Dayna Wilmot, 2014, 2015
- Yuna Lee, 2015, 2016, 2017
- Jakub Kaczmarzyk, Summer 2015
- Megumi Takada, 2015, 2016, 2017
- Daniel Mirney, 2016
- Yuriko Fukumura, 2017
- Emily McDermitt, summer 2016
- Katherine Chew, 2017
- Fatima Gunter-Rahman, 2017, 2018
- Andrea Garcia, 2018
- Stephanie Flores, 2018

### **High School Mentor**

Mentor high school students: Teach them fMRI/ behavioral data collection and analysis in preparation for them to apply to the Intel Science Talent Search competition.

- Daniel Remondi, Belmont Hill School, Belmont, MA, 2014, 2015
- James Onyeukwu, Belmont Hill School, Belmont, MA, 2014, 2015
- Courtney Noll, Spackenkill High School, Poughkeepsie, NY, summer 2014, 2015

## REFERENCES

**Dr. John Gabrieli, Professor of Brain and Cognitive Sciences, MIT**  
Gabrieli@mit.edu, 617-324-2896

**Dr. Laura Schulz, Professor of Brain and Cognitive Sciences, MIT**  
lschulz@mit.edu, 617-324-4859

**Dr. Allyson Mackey, Assistant Professor of Psychology, University of Pennsylvania**  
mackeya@sas.upenn.edu, 215-573-3074

**Dr. Anna Shusterman, Professor of Psychology, Wesleyan University**  
Ashusterman@wesleyan.edu, 860-685-4849