

Justin Halberda

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<http://pbs.jhu.edu/research/halberda/>

Developmental Psychology Lab:

<http://www.psy.jhu.edu/~labforchilddevelopment/>

Vision and Cognition Lab:

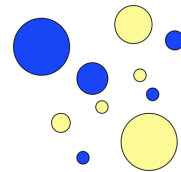
<http://www.halberdalab.net/>

Labs



The Laboratory For Child Development

<http://www.psy.jhu.edu/~labforchilddevelopment/>



The Vision & Cognition Lab

<http://www.halberdalab.net/>



The Vision Sciences Group of Johns Hopkins University

<http://www.jhuvisionssciencegroup.org>

Academic Appointments

- 2014 - *Professor* (Primary Appointment). Department of Psychological and Brain Sciences, Johns Hopkins University, Baltimore, MD
Professor (Secondary Appointment). Department of Cognitive Science, Johns Hopkins University, Baltimore, MD
- 2010 - 2014 *Associate Professor* (Primary Appointment). Department of Psychological and Brain Sciences, Johns Hopkins University, Baltimore, MD
Associate Professor (Secondary Appointment). Department of Cognitive Science, Johns Hopkins University, Baltimore, MD
- 2004 - 2010 *Assistant Professor* (Primary Appointment). Department of Psychological and Brain Sciences, Johns Hopkins University, Baltimore, MD
Assistant Professor (Secondary Appointment). Department of Cognitive Science, Johns Hopkins University, Baltimore, MD

- 2003 – 2004 *Postdoctoral Fellow*. Laboratoire de Sciences Cognitives et Psycholinguistique, Ecole Normale Supérieure, CNRS. Paris, France
Sponsor: Emmanuel Dupoux
- 2001 – 2003 *Visiting Fellow*. Department of Psychology, Harvard University, Cambridge, MA

Education

- 1997-2003 New York University M.A. & Ph.D. in Cognitive Psychology
Advisor Susan Carey
Degree conferred May, 2003
- 1992-1997 College of Charleston Magna cum laude
B.S. *Psychology*
B.A. *Philosophy*
B.S. *Biochemistry*
B.A. *Chemistry*

Academic Awards and Honors

- Johns Hopkins University Alumni Association Excellence in Teaching Award* 2012, (1 of 2 awards given in the Krieger School of Arts and Sciences), Johns Hopkins University, 2012
- Certificate of Distinction in Teaching*, Harvard University, 2003
- Graduate Fellowship*, National Science Foundation, 1998-2001
- Henry Mitchell MacCracken Graduate Fellowship*, New York University, 1997-2001
- Presidential Scholarship*, College of Charleston, 1995
- Lee Harwood Scholarship*, College of Charleston, 1993
- Sigma Alpha Phi*, College of Charleston Honors Society
- Phi Kappa Phi*, National Honors Society

Refereed Journal Publications (* indicates student or post-doc at time of publication)

- *Gouet, C., *Carvajal, S., Halberda, J., & Peña, M. (in press). Training nonsymbolic proportional reasoning in children and its effects on their symbolic math abilities. *Cognition*.
- Halberda, J. (2019). Perceptual Input Is Not Conceptual Content. *Trends in cognitive sciences*.
- *Pailian, H., Simons, D. J., *Wetherhold, J., & Halberda, J. (2019). Using the flicker task to estimate visual working memory storage capacity. *Attention, Perception, & Psychophysics*, 1-19.
- *Elliott, L., Feigenson, L., Halberda, J., & Libertus, M. E. (2019). Bidirectional, Longitudinal Associations Between Math Ability and Approximate Number System Precision in Childhood. *Journal of Cognition and Development*, 20(1), 56-74.
- Libertus, M., Feigenson, L. & Halberda, J. (2018). Infants extract frequency distributions from variable approximate numerical information. *Infancy*, 23(1), 29-44.
- Odic, D., Pietroski, P., Hunter, T., Halberda, J., & Lidz, J. (2018). Individuals and non-individuals in cognition and semantics: The mass/count distinction and quantity representation. *Glossa: a journal of general linguistics*, 3(1).

- Libertus, M.E., *Liu, A., *Pikul, O., *Jacques, T., *Cardoso-Leite, P., Halberda, J. & Bavelier, D. (2017). The impact of action video game training on mathematical abilities in adults. *AERA Open*, 3(4), 1-13.
- *Wang, J., Odic, D., Halberda, J., & Feigenson, L. (2017). Better together: Multiple lines of evidence for a link between approximate and exact number representations. A reply to Merkley, Matejko & Ansari. *Journal of Experimental Child Psychology*, 153, 168-172.
- *Wang, J., Halberda, J. & Feigenson, L. (2017). Approximate number sense correlates with mathematics performance in gifted adolescents. *Acta Psychologica*, 176, 78-84.
- Delgado, C., Jones, M.G., *You, H.S., Robertson, L., Chestnutt, K., Halberda, J. (2017). Scale and the evolutionarily-based Approximate Number System: An exploratory study. *International Journal of Science Education*, 39(8), 1008-1024.
- Valle-Lisboa, J., Cabana, Á., *Eisinger, R., Mailhos, Á., Luzardo, M., Halberda, J. & Maiche, A. (2016). Cognitive abilities that mediate SES's effect on elementary mathematics learning: The Uruguayan tablet-based intervention. *Prospects: Comparative Journal of Curriculum, Learning, and Assessment*, 46(2), 301-315.
- *Odic, D., Im, H., *Eisinger, R., *Ly, R., & Halberda, J. (2016). PsiMLE: A maximum-likelihood estimation approach to estimating psychophysical scaling and variability more reliably, efficiently, and flexibly. *Behavior Research Methods* 48: 445.
- Pailian, H., Libertus, M.E., Feigenson, L. & Halberda, J. (2016). Visual working memory capacity increases between ages 3 and 8 years, controlling for gains in attention, perception, and executive control. *Attention, Perception and Psychophysics*, 78:1556–1573.
- Libertus, M., Odic, D., Feigenson, L. & Halberda, J. (2016). The Precision of Mapping Between Number Words and the Approximate Number System Predicts Children's Formal Math Abilities. *Journal of Experimental Child Psychology* 150, 207-226.
- *Wang, J., *Odic, D., Halberda, J., & Feigenson, L (2016). Changing preschoolers' approximate number system changes their symbolic math performance. *Journal of Experimental Child Psychology* 147, 82-99.
- *Im, H. Y., *Zhong, S., & Halberda, J. (2016). Grouping by proximity and the visual impression of approximate number in random dot arrays. *Vision Research*, 126, 291-307.
- Shusterman, A., *Slusser, E., Halberda, J. & *Odic, D. (2016). Acquisition of the cardinal principle coincides with improvement in Approximate Number System acuity in preschoolers. *PLoS ONE* 11 (4), e0153072.
- Odic, D., Valle Lisboa, J., *Eisinger, R., Gonzalez, M, Maiche, A., & Halberda, J. (2016). Approximate number and approximate time discrimination each correlate with school math abilities in young children. *Acta Psychologica*, 163, 17-26.
- Odic, D., & Halberda, J. (2015). Eye movements reveal distinct encoding patterns of number and cumulative surface area in random dot arrays. *Journal of Vision*, 15(15):5, 1–15.
- *Libertus, M., *Odic, D., Feigenson, L. & Halberda, J. (2015). A developmental vocabulary assessment for parents (DVAP): Validating parental report of vocabulary size in 2-7-year-olds. *Journal of Cognition and Development*, 16(3):442–454.
- *Odic, D., Le Corre, M., & Halberda, J. (2015). Children's mappings between number words and the approximate number system. *Cognition*, 138, 102-121.
- *Pailian, H. & Halberda, J. (2015).

- The reliability and internal consistency of one-shot and flicker change detection for measuring individual differences in visual working memory capacity. *Memory & Cognition*, 43(3), 397-420.
- *Odic, D., Hock, H., & Halberda, J. (2014).
Hysteresis affects approximate number discrimination in young children. *Journal of Experimental Psychology: General*, Vol 143(1), 255-265.
- *Libertus, M.E., Landau B., Feigenson, L., Halberda, J. (2014).
Understanding the mapping between numerical approximation and number words: Evidence from Williams syndrome and typical development. *Developmental Science*, 17(6), 905-919.
- *Tosto, M.G., Petrill, S.A., Halberda, J., *Trzaskowski, M., Tikhomirova, T.N., Bogdanova, O.Y., *Ly, R., Wilmer, J.B., Naiman, D.Q., *Germine, L., Plomin, R., & Kovas, Y. (2014).
Why do we differ in number sense? Evidence from a genetically sensitive investigation. *Intelligence*, 43, 35-46.
- Hellgren, K., Halberda, J., Forsman, L., Åden, U. & *Libertus, M. (2013).
Compromised approximate number system acuity in extremely preterm school-aged children. *Developmental Medicine & Child Neurology*, 55 (12), 1109-1114.
- *Libertus, M., Feigenson, L. & Halberda, J. (2013).
Numerical approximation abilities correlate with and predict informal but not formal mathematics abilities. *Journal of Experimental Child Psychology*, 116(4), 829-838.
- *Odic, D., *Libertus, M., Feigenson, L. & Halberda, J. (2013).
Developmental change in the acuity of approximate number and area representations. *Developmental Psychology*, 49(6), 1103.
- *Libertus, M.E., Feigenson, L. & Halberda, J. (2013).
Is approximate number precision a stable predictor of preschool math ability? *Learning And Individual Differences*, 25, 126-133.
- *Odic, D., Pietroski, P., Lidz, J., *Hunter, T. and Halberda, J. (2013).
Young Children's Understanding of 'More' and Discrimination of Area. *Journal of Experimental Psychology: Learning, Memory & Cognition (JEP:LMC)*, 39(2), 451-461.
- Feigenson, L., *Libertus, M.E., & Halberda, J. (2013).
Links between the intuitive sense of number and formal mathematics ability. *Child Development Perspectives*, 7(2), 74-79.
- *Im, H. Y. & Halberda, J. (2013).
The effects of sampling and internal noise on the representation of ensemble average size. *Attention, Perception, & Psychophysics* 75(2), 278-286.
- *Zosh, J.M., *Brinster, M. & Halberda, J. (2013).
Optimal contrast: Competition between two referents improves word learning. *Applied Developmental Science*, 17(1), 20-28.
- *Libertus, M. E., *Odic, D., & Halberda, J. (2012).
Intuitive Sense of Number Correlates With Math Scores on College-Entrance Examination. *Acta Psychologica*, 141(3), 373-379.
- Halberda, J., *Ly, R., Wilmer, J., Naiman, D., & *Germine, L. (2012)
Number Sense across the lifespan as revealed by a massive internet-based sample. *Proceedings of the National Academy of Sciences (PNAS)* 109(28), 11116-11120.
- Mazzocco, M.M.M., Feigenson, L. & Halberda, J. (2011).
Preschoolers' precision of the Approximate Number System predicts later school mathematics performance. *PLoS ONE* 6(9): e23749. doi:10.1371/journal.pone.0023749.
- *Libertus, M., Feigenson, L., & Halberda, J. (2011).

- Preschool acuity of the approximate number system correlates with school math ability. *Developmental Science*, 14(6), 1292-1300.
- Pietroski, P., Lidz, J., *Hunter, T., *Odic, D. and Halberda, J. (2011).
Seeing what you mean, mostly. *Syntax and Semantics*, 37, *Special Issue: Experiments at the Interfaces*; (Ed) Jeffrey T. Runner, 187-224.
- Mazzocco, M.M.M., Feigenson, L. & Halberda, J. (2011).
Impaired acuity of the approximate number system underlies mathematical learning disability. *Child Development*, 82: 1224–1237.
- Lidz, J., Pietroski, P., *Hunter, T. & Halberda, J. (2011).
Interface transparency and the psychosemantics of ‘most’. *Natural Language Semantics*, 19, 227-256.
- *Zosh, J.M., Halberda, J. & Feigenson, L. (2011).
Memory for multiple visual ensembles in infancy. *Journal of Experimental Psychology: General*, 140(2), 141-158.
- *Spiegel, C., & Halberda, J. (2011).
Rapid fast-mapping abilities in 2-year-olds. *Journal of Experimental Child Psychology*, 109(1), 132-140.
- *Moher, M., Feigenson, L. & Halberda, J. (2010).
A one-to-one bias and fast mapping support preschoolers' learning about faces and voices. *Cognitive Science*, 34, 719-751.
- *Hunter, T., Halberda, J., Lidz, J. and Pietroski, P. (2009).
Beyond Truth Conditions: the semantics of ‘most’. *SALT 18, Proceedings of the Semantics and Linguistic Theory Conference*.
- Pietroski, P., Lidz, J., *Hunter, T. & Halberda, J. (2009).
The meaning of ‘Most’: semantics, numerosity, and psychology. *Mind and Language*, 24(5), 554-585.
- Feigenson, L. & Halberda, J. (2008).
Conceptual knowledge increases infants’ memory capacity. *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*, 105(29), 9926-9930.
- Halberda, J., Mazzocco, M. & Feigenson, L. (2008).
Individual differences in nonverbal number acuity predict maths achievement. *Nature*, 455, 665-668.
- Halberda, J. & Feigenson, L. (2008).
Developmental change in the acuity of the “Number Sense”: The approximate number system in 3-, 4-, 5-, 6-year-olds and adults. *Developmental Psychology*, 44(5), 1457-1465.
- Halberda, J., *Taing, L. & Lidz, J. (2008).
The development of “most” comprehension and its potential dependence on counting-ability in preschoolers. *Language Learning and Development*, 4(2), 99-121.
- Halberda, J. (2006).
Is this a dax which I see before me? Use of the logical argument disjunctive syllogism supports word-learning in children and adults. *Cognitive Psychology*, 53(4), 310-344.
- Halberda, J., *Sires, S. & Feigenson, L. (2006).
Multiple spatially-overlapping sets can be enumerated in parallel. *Psychological Science*, 17(7), 572-576.
- Kouider, S., Halberda, J., Wood, J. & Carey, S. (2006).

- Acquisition of English number marking: The singular-plural distinction. *Language Learning and Development*, 2(1), 1-25.
- Feigenson, L. & Halberda, J. (2004).
 Infants chunk object arrays into sets of individuals. *Cognition*, 91, 173-190.
- Halberda, J. (2003).
 The development of a word-learning strategy. *Cognition*, 87, B23-B34.
- Halberda, J.P., Muddaugh, L.D., Gard, B.E., Jackson, B.P. (1997).
 DAD1- and DAD2 like agonist effects on motor activity of C57 mice: Differences compared to rats. *Synapse*, 26 (1), 81-92.
- Bowers, R.L., Halberda, J.P., Mullen, L., May, K. (1997).
 Captopril alters schedule induced polydipsia, urination and defecation in rats. *Pharmacology, Biochemistry, and Behavior*, 57, 353-359.

Commentaries and Book Chapters (* indicates student or post-doc at time of publication)

- *Langfus, J., Maiche, A., *De León, D., *Fitipalde, D., Mailhos, Á., & Halberda, J. (2019). The Effects of SES, Grade-Repeating, and IQ in a Game-Based Approximate Math Intervention. In *Cognitive Foundations for Improving Mathematical Learning*(pp. 37-67). Academic Press.
- Halberda, J. (2018). Logic in babies. *Science*, 359(6381), 1214-1215.
- Halberda, J. (2016). Epistemic limitations and precise estimates in analog magnitude representation, in Baron, A., & Barner, D. (Eds), *Core Knowledge and Conceptual Change*, Oxford University Press, 167-186.
- Valle-Lisboa, J, Mailhos, Á., *Eisenger, R., Halberda, J., Gonzalez, M., Luzardo, M., & Maiche, A. (2016). Estimulación Cognitiva a escala Poblacional utilizando Tablets: del sistema numérico aproximado (ANS) a la matemática simbólica. En Lipina, S.J., Sigman, M., Fernandez Slezak, D., eds, *Pensar las TICs desde las ciencias cognitivas y la neurociencia*, Gedisa: Buenos Aires.
- Halberda, J. & *Odic, D. (2014). The precision and internal confidence of our approximate number thoughts. In (Eds.) David C. Geary, Daniel B. Berch, Kathleen Mann Koepke, *Evolutionary Origins and Early Development of Number Processing: Mathematical Cognition and Learning, Volume 1, Chapter 12*, 305-333; Academic Press, London, UK.
- Halberda, J. & Feigenson, L. (2008). Set representations required. [Commentary] *Behavioral and Brain Sciences*, 31, 655-656.

Grant Support

External Funding: (Primary grants which fund my labs)

McDonnell Collaborative Award, "The nature and origins of the human capacity for abstract combinatorial thought"

\$130,235 Total costs

Years: 2015-2020

Role: PI (Subaward from Harvard University, Susan Carey PI)

ANII Collaboration Grant, Agencia Nacional de Investigación e Innovación (Uruguay),

"Promoting the learning of mathematics with the tablet: Let's play with time, space and

quantity"

\$78,000 Total costs

Years: 2016-2017

Role: PI (Co-PI Alejandro Maiche)

McDonnell Scholar Award, "How Biology and Experience Shape Math Competence"

\$600,000 Total costs

Years: 2014-2020

Role: PI

NSF, DIP1227168, "Hard Fun Learning Mathematics: An Action Game To Stimulate Number Sense"

\$200,006 Total costs

Years: 2012-2016

Role: PI

NSF REESE, DRL1109513, "A Bayesian Approach To Number Reasoning"

\$159,164 Total costs

Years: 2011-2014

Role: PI

NIH R01, HD057258, "Development and function of nonverbal number approximation"

\$1,607,363 Total costs

Years: 2009-2014

Role: PI (Co-PI Lisa Feigenson)

NSF EAGER, DRL0937675, "The Psychophysical Assessment of Number Sense Acuity"

\$293,400 Total costs

Years: 2009-2011

Role: PI

NIH 3R01 HD057258-01A2S2, "Summer Research Experience for Students and Science Educators"

\$6700 Total costs

Years: 2010

Role: PI (Co-PI Lisa Feigenson)

NIH 3R01 HD057258-01A2S1, "Summer Research Experience for Students and Science Educators"

\$6700 Total costs

Years: 2009

Role: PI (Co-PI Lisa Feigenson)

Consortium Funding: *(Research and Training grants I have made significant contributions to)*

James S. McDonnell Foundation, "The Nature and Origins of the Human Capacity for Abstract Combinatorial Thought"

\$1,977,025 Total costs

PI: Susan Carey, Harvard University

Years: 2016-2021

Role: Associated Faculty, Maryland Axis

NSF DRL-1113648, "Broad Implementation: Creating Communities Of Learners For Informal Cognitive Science Education"

\$1,736,685 Total costs

JHU Subaward: \$154,885

Years: Sep 2011 - Aug 2014

Role: Associated Faculty

NSF IGERT, DGE 0549379, "Unifying the Science of Language"

JHU award: \$3,182,734 Total costs

Years: 2007-2012

Role: Associated Faculty

Templeton Foundation, "Evolution, Cognition & Culture"

JHU award: \$420,000, Research funds and speaker series

Years: 2007-2010

Funding breakdown: \$270,000 Metanexus Institute, \$60,000 John T.

Templeton Foundation, \$60,000 in matching funds from JHU KSAS.

Role: Associated Faculty & Member of the Advisory Board

Internal Funding: (*Internal grants awarded to me and those awarded to my students where I have functioned as the PI or sponsor for the research*)

DURA, "The Language-Number/Area Interface: Mass/Count Distinction in Cantonese"

\$2,550 Total costs

Dean of Arts and Sciences, The Johns Hopkins University

Years: 2016

Role: PI (advising Athena Wong, *Dean's Undergraduate Research Award*)

PURA, "The effects of spatiotemporal continuity on change blindness"

\$1,000 Total costs

Provost, The Johns Hopkins University

Years: 2013

Role: PI (advising Beth Flaherty, *Provost Undergraduate Research Award*)

PURA, "The Relationship between the Korean Board Game Baduk, and Processing Speed, Executive Function, and Short-Term Memory in Older Adults"

\$3,000 Total costs

Provost, The Johns Hopkins University

Years: 2008

Role: PI (advising Jill Lasak & Yonah Chi, *Provost Undergraduate Research Award*)

PURA, "Inference versus instruction"

\$3,000 Total costs

Provost, The Johns Hopkins University

Years: 2006

Role: PI (advising Meredith Brinster, *Provost Undergraduate Research Award*)

Mentorship Funding: (*External grants awarded to my students where I have functioned as the PI or sponsor for the research*)

NSF, "You're getting warmer: Perceptual effects in the comparison of adjectives"

\$138,000, tuition and stipend costs

NSF, Graduate Research Fellowship Program

Years: 2016-2019

Role: Sponsor (NSF predoc to Emily Sanford)

NSERC, "Individual differences in visual working memory capacity assessed by the flicker task"

\$63,000, stipend and benefits costs

Natural Sciences and Engineering Research Council of Canada

Years: 2012 - 2015

Role: Sponsor (NSERC PhD Award to Hrag Pailian)

NSERC, "Development and interaction of the Approximate Number System and Quantifiers"

\$63,000, stipend and benefits costs

Natural Sciences and Engineering Research Council of Canada

Years: 2010 - 2013

Role: Sponsor (NSERC PhD Award to Darko Odic)

NSERC, "Visual working memory limits assessed by the Flicker paradigm"

\$34,600, stipend and benefits costs

Natural Sciences and Engineering Research Council of Canada

Years: 2011 - 2012

Role: Sponsor (NSERC Masters Award to Hrag Pailian)

NSERC, "Development of Number and the SNARC effect"

\$34,600, stipend and benefits costs

Natural Sciences and Engineering Research Council of Canada

Years: 2009 - 2010

Role: Sponsor (NSERC Masters Award to Darko Odic)

NSF, "Logical Reasoning In Human Infants"

\$135,000, tuition and stipend costs

NSF 06-592, Graduate Research Fellowship Program

Years: 2006-2009

Role: Sponsor (Co-Sponsor Lisa Feigenson, NSF predoc to Mariko Yamaguchi)

Colloquia

Number: Vision, Language and Cognition

Naval Research Laboratory	<i>Modeling and Psychology Group</i>	Spring, 2017
Yale University	<i>Developmental Colloquium</i>	Fall, 2016
Universidad de la República, Uruguay	<i>Facultad de Psicología</i>	Fall, 2016
University of Maryland	<i>Dept. of Linguistics</i>	Spring, 2016
U.C. Berkeley	<i>Dept. of Psychology</i>	Spring, 2014
University of Pennsylvania	<i>Dept. of Psychology</i>	Fall, 2013

Ohio State University	<i>Dept. of Psychology</i>	Spring, 2013
University of Chicago	<i>Dept. of Psychology</i>	Spring, 2012
Rutgers University	<i>RuCCS, IGERT series</i>	Fall, 2011
University of California, UCSD	<i>Dept. of Psychology</i>	Spring 2011
Johns Hopkins University	<i>Neuro-Education Initiative</i>	Fall, 2010
University of Virginia	<i>Dept. of Psychology, Developmental</i>	Fall 2010
University of Rochester	<i>Brain & Cognitive Sciences</i>	Spring, 2010
Harvard University	<i>Cognition, Brain & Behavior</i>	Fall, 2009
University of Maryland, Balt. County	<i>Dept. of Psychology</i>	Winter, 2008
Scuola Internazionale Superiore di Studi Avanzati, Trieste, Italy	<i>Cognitive Science Group</i>	Fall, 2003

Word Learning and Logical Inference

Duke University	<i>Dept. of Psychology and Neuroscience</i>	Spring, 2007
Johns Hopkins University	<i>Center for Language and Speech Processing</i>	Spring, 2007
University of Delaware	<i>Dept. of Psychology, Cognitive Group</i>	Fall, 2006
University of Maryland, Col. Park	<i>Dept. of Linguistics</i>	Spring, 2006
Universite d'Aix-Marseille	<i>Psychology and Cognitive Sciences</i>	Spring, 2004
University of Wisconsin-Madison	<i>Dept. of Psychology</i>	Spring, 2003
Scuola Internazionale Superiore di Studi Avanzati, Trieste, Italy.	<i>Cognitive Science Group</i>	Fall, 2003
Yale University	<i>Dept. of Psychology, Cognitive Group</i>	Spring, 2002

Invited Engagements

- Invited speaker, Halberda, J. (2018). Perceptual capacities and psychophysics. *Rutgers, New Brunswick, USA*.
- Invited participant (2017). Plenary Meeting of the McDonnell Network. San Diego, June 12-14.
- Invited speaker, Halberda, J. (2017). Improving mathematical cognition and learning: Formal and informal instructional influences & interventions. *Nashville, USA*.
- Invited speaker, Halberda, J. (2017). Simposio de Educación, Cognición y Neurociencias, *Montevideo, URUGUAY*.
- Keynote Speaker, Halberda, J. (2016). Special address to scientists and educators, *Facultad de Psicología Universidad de la República, Montevideo, URUGUAY*.
- Invited speaker, Halberda, J. (2016). CogEvo, Rovereto workshop on cognition and evolution, *Rovereto, ITALY*.
- Invited speaker, Halberda, J. (2015). Symposium honoring John T. Bruer, James S. McDonnell Foundation, *St. Louis, MO, USA*.
- Invited speaker, Halberda, J. (2015). LA School for education, cognitive, and neural sciences, *San Pedro de Atacama, CHILE*.
- Invited speaker, Halberda, J. (2014). Institució Catalana de Recerca i Estudis Avançats (ICREA), Workshop on Baby Logic and related topics, *Barcelona, SPAIN, September*.
- Keynote Speaker, Halberda, J. (2014). DUCOG, VI Dubrovnik Conference on Cognitive Science, *Dubrovnik, CROATIA, May 22-24*.
- Invited speaker, Halberda, J. (2014). NICHD, CDBB Speaker Series, *Maryland, USA*.
- Invited Faculty, Halberda, J. (2014). LA School for education, cognitive, and neural sciences, *Punta Del Este, URUGUAY*.
- Keynote Address, Halberda, J. (2013). Scholastic Math Leadership Summit, *Miami, USA*.
- Invited speaker, Halberda, J. (2013). Universitat Pompeu Fabra, *Barcelona, SPAIN*.
- Invited speaker, Halberda, J. (2013). Scholastic Inc. Math Group, *New York, USA*.
- Invited speaker, Halberda, J. (2013). Stanford Cognitive and Systems Neuroscience Laboratory, Stanford University, Dept. of Psychology & Stanford School of Medicine. April 25.
- Invited speaker, Halberda, J. (2013). E-Line Media, Seattle. April 23.

- Invited speaker, Halberda, J. (2012). Basic cognition for numbers: Potential impacts in the science classroom. *NIH Science Education Conversations Series*. October 2012.
- Keynote Address, Halberda, J. (2012). "La relación entre el proceso visual, los conceptos numéricos básicos y el significado de las palabras". *Encuentro sobre Adquisición y Desarrollo Habilidades Lingüísticas*, (UNAM) Universidad Nacional Autónoma de México en Ciudad de México, MÉXICO, September 2012.
- Invited speaker, Halberda, J. (2012). Our gut sense for numbers. *AAAS Stage, USA Science & Engineering Festival*. April, 28-29. Washington, DC.
- Invited speaker, *The Cognitive Development Society*, Future Faces of Cognitive Development Research. Philadelphia PA, October 2011.
- Invited speaker, *The Society for Philosophy and Psychology*. Montreal, Canada, July 2011.
- Invited speaker, *Vague Quantities and Vague Quantifiers (VQ2)*, *Zentrum für Allgemeine Sprachwissenschaft (ZAS)*. Berlin, Germany, December 2010.
- Invited speaker, *Boston University Conference on Language Development 35, BUCLD*. Boston, MA, November 2010.
- Invited participant, "Space, Time and Number", *The 24th International Symposium on Attention and Performance*, Abbey de Vaux de Cernay, France, July 2010.
- Invited speaker, "NICHHD Math Consortium Meeting", Bethesda MD, USA, May 2010.
- Invited participant, *National Academy of Sciences "German-American Frontiers of Science"*, Irvine, CA, June 2005.
- Invited participant, AHRB Hang Seng Centre "Reflections on Innateness" Conference, Sheffield, UK, April 2004.

Conference Talks (* indicates student or post-doc at time of event)

- Halberda, J., Nichols, S., Cesana-Arlotti, N. & Jauregui, S. (2019). Modal reasoning in preschoolers. *Talk presented at the 3rd Plenary Meeting of the McDonnell Network on the logical foundations of cognition*. June 14-16, Martha's Vineyard, MA.
- *Yu, Q. & Halberda, J. (2019). Consolidation: How information limits visual working memory capacity. *Talk presented at VSS, Vision Sciences Society*, May 17-21 St. Petersburg, FL.
- Pepperberg, I. M., Libertus, M., Feigenson, L., Halberda, J. & *Pailian, H. (2019). Evolution and development of signature limits in mental manipulation. *Talk presented at VSS, Vision Sciences Society*, May 17-21 St. Petersburg, FL.
- Halberda, J. (2019). Re-understanding internal noise as internal confidence for time, space and number. *Talk presented at AIC, Annual Interdisciplinary Conference*. Feb 1-4, Teton Village, WY.
- *Knowlton, T., Halberda, J., Pietroski, P. & Lidz, J. (2018). Acquiring the universal quantifiers: every part together or each part on its own? *Talk presented at BUCLD, the Boston University Conference on Language Development*, November 2-4 Boston, MA.
- Halberda, J. (2018). Non-numerical cues are (roughly) irrelevant to determining the content of our numerical thoughts. *Talk presented at MCLS, Math Cognition and Learning Society*. Oxford, UK.
- Halberda, J. (2018). Analog Magnitude representations are precise contents with epistemic limitations. *Talk presented at MCLS, Math Cognition and Learning Society*. Oxford, UK.
- Halberda, J. (2017). Analog Magnitude representations: precise contents with epistemic limitations. *Talk presented at SPP, The Society for Philosophy and Psychology 43rd Annual Meeting*. Baltimore, MD.
- Halberda, J. (2017). The input is not the content. *Talk presented at Mini-AIC, Annual Interdisciplinary Conference*. Jackson Hole, WY.
- *Pailian, H., & Halberda, J. (2015). Breaking visual working memory: cases of independence between storage and manipulation costs. *Talk presented at VSS, the Vision Sciences Society*, May 15-20, St. Pete Beach, FL.
- Libertus, M.E., Odic, D., Feigenson, L. & Halberda, J. (2015). Verbal number estimation predicts math ability and mediates the relation between numerical approximation and math ability. *Talk presented at SRCD, the Society for Research on Child Development*, Philadelphia, PA.
- Halberda, J., *Im, H. & *Zhong, S. (2015). Clustering and number perception in random dot arrays. *Talk presented at AIC, Annual Interdisciplinary Conference*. Jackson Hole, WY.
- *Pailian, H., Libertus, M., Feigenson, L., & Halberda, J. (2014). On the dynamic nature of VWM: Separate limits for the storage and manipulation of information. *Talk presented at VSS, the Vision Sciences Society*, May 16-21, St. Pete Beach, FL.

- Halberda, J. & *Im, H. (2014). Approximate number and average size are representations with no individuals. *Talk presented at AIC, Annual Interdisciplinary Conference*. Jackson Hole, WY.
- *Pailian, H., & Halberda, J. (2013). Independent costs for storing and manipulating information in visual working memory. *Talk presented at OPAM, Annual Meeting on Object Perception, Attention, and Memory*. Toronto, CANADA.
- Halberda, J., *Libertus, M., *Wang, J., *Odic, D. & Feigenson, L. (2013). Intervention and transfer in the Approximate Number System (ANS). *Talk presented at CDS, The Cognitive Development Society*, October 18-19, Memphis, TN.
- *Pailian, H. & Halberda, J. (2013). Moving Beyond Storage Limitations: Exploring the Dynamic Manipulation of Representations in VWM. *Talk presented at VSS, the Vision Sciences Society*, May 10-15 Naples, FL.
- *Odic, D. & Halberda, J. (2013) The independence of visual number and area processing: evidence from psychophysics, development, and eye-tracking. *Talk to be presented at VSS 2013*, May 10-15, Naples, Florida.
- Halberda, J., Bavelier, D., Landau, B., Hellgren, K., Forsman, L., *Jacques, T., *Libertus, M. (2013). Training of Number Sense transfers broadly. *Talk presented at VSS 2013, The Vision Sciences Society*. May 10-15, Naples Florida.
- Halberda, J., *Libertus, M. E. & Feigenson, L. (2013). The Approximate Number System (ANS): What is it and how might it be affecting classroom performance? *Talk presented at AERA, Annual meeting of The American Educational Research Association*. April 27– May 1, San Francisco, CA.
- Halberda, J. (2013). Reasoning by exclusion: faces & voices, novel words and searching for objects. *Talk presented at SRCD*, April 18-20, Seattle, WA.
- Halberda, J. (2013). An interface between vision, numerical cognition, and word meanings. *Talk presented at AIC, Annual Interdisciplinary Conference*. January 27-February 1, Jackson Hole, WY.
- *Wellwood, A., *Odic, D., Halberda, J. & Lidz, J. (2012). Choosing quantity over quality: Syntax guides interpretive preferences for novel superlatives. *Talk and proceeding from CogSci Meeting of the Cognitive Science Society*. Aug 1- 4, Japan.
- Wilmer, J. B., *Germine, L., *Ly, R., *Hartshorne, J.K., *Kwok, H., *Pailian, H., Williams, M.A., & Halberda, J. (2012). The heritability and specificity of change detection ability. *Talk presented at VSS, the Vision Sciences Society*, May 11-16, Naples Florida.
- *Wellwood, A., Halberda, J., *Hunter, T., *Odic, D., Pietroski, P., & Lidz, J. (2012). Meaning more or most: evidence from 3-and-a-half year-olds. *Talk presented at CLS 48, The 48th Annual Meeting of the Chicago Linguistic Society*, April 19-21, Chicago, IL.
- Halberda, J. (2012). An ensemble group is selected and processed as a single item. *Talk presented at AIC 37, the Annual Interdisciplinary Conference*, January 30 – February 3, Breckenridge, CO.
- Halberda, J. (2011). The development of discrete and continuous quantification from infancy to childhood. *Talk presented at SRCD, the Society for Research in Child Development*, March 31- April 2, Montreal, Quebec.
- Halberda, J. & *Zosh, J. M. (2011). Competition among referents in word learning. *Talk presented at SRCD, the Society for Research in Child Development*, March 31- April 2, Montreal, Quebec.
- *Libertus, M.E., Halberda, J. & Feigenson, L. (2011). Approximate Number Discrimination Correlates With Math Abilities in Preschoolers. *Talk presented at SRCD, the Society for Research in Child Development*, March 31- April 2, Montreal, Quebec.
- Halberda, J. (2010). An interface between vision, numerical cognition and word meanings. *Talk presented at CogSci 2010, the Annual Meeting of the Cognitive Science Society*, August 11-14, Portland Oregon.
- Halberda, J. (2010). The Approximate Number System supports the learning and use of quantifier terms in children and adults. *Talk presented at ICIS, the International Conference on Infant Studies*, March 11-14, Baltimore, MD.
- Halberda, J., Lidz, J., Merickel, J., *Hunter, T. & Pietroski, P. (2009). Approximate number representations in the acquisition of 'most'. *Talk presented at BUCLD, the Boston University Conference on Language Development*, November 6-8 Boston, MA.
- Halberda, J. (2009). An interface between vision and numerical cognition. *Talk presented at VSS, the Vision Sciences Society*, May 8-13, Naples Florida.
- Lidz, J., Halberda, J., *Hunter, T., & Pietroski, P. (2009). Approximate and exact cardinality in the acquisition of most. *Talk presented at SRCD, the Society for Research in Child Development*, April 2-4 Denver, CO.
- Halberda, J. (2009). Mutual exclusivity as logical inference: Evidence for domain general disjunctive syllogism in 2-3 year olds. *Talk presented at SRCD, the Society for Research in Child Development*, April 2-4 Denver, CO.

- Halberda, J., Lidz, J., Pietroski, P., & *Hunter, T. (2009). Set based visual processing in the acquisition of 'most'. *Talk presented at LSA, the Linguistic Society of America*, January 8-11 San Francisco, CA.
- Pietroski, P., Halberda, J., *Hunter, T., & Lidz, J. (2009). Beyond truth conditions: The semantics of 'most'. *Talk presented at LSA, the Linguistic Society of America*, January 8-11 San Francisco, CA.
- Halberda, J. (2008). Developmental change in the computations that support the mapping of novel labels to novel objects. *Talk presented at ICIS, the International Conference on Infant Studies*, Vancouver BC, Canada.
- *Hunter, T., Halberda, J., Lidz, J. & Pietroski, P. (2008). Beyond truth conditions: The semantics of 'most'. *Talk presented at SALT 18, the 18th conference of Semantics and Linguistic Theory*, March 21-23, Amherst Massachusetts.
- Halberda, J., *Hunter, T., Pietroski, P. & Lidz, J. (2008). An interface between language and vision: quantifier words and set-based processing. *Talk presented at VSS, The Vision Sciences Society*, May 9-14, Naples Florida.
- Halberda, J., Lidz, J., Pietroski, P. & *Hunter, T. (2007). Language and number: Towards a psychosemantics for natural language quantifiers. *Talk presented at HOWL 4, the 4th Hopkins Workshop on Language: Grammar in Cognition*, October 12-14, Baltimore Maryland.
- Halberda, J. (2006). Logical inference, domain generality, and word-learning. *Invited talk presented at the annual meeting of the Eastern Psychological Association*, Baltimore, MD.
- *Taing, L., Halberda, J. & Feigenson, L. (2006). Counting in deaf and hearing individuals: An interaction of language and thought. *Talk presented at EPA, the annual meeting of the Eastern Psychological Association*, Baltimore, MD.
- Halberda, J. & Feigenson, L. (2005). Counting without individuals: Rapid parallel enumeration implicates preattentive object-files. *Talk presented at VSS, the Vision Sciences Society*, Sarasota, FL.
- Halberda, J. (2005). Logical inference motivates word-learning in two-year-olds. *Talk presented at SRCD, the Society for Research in Child Development*, Atlanta, GA.
- Kouider, S., Feigenson, L., *Wood, J., Halberda, J. & Carey, S. (2004). Infant's understanding of the singular-plural distinction. *Talk presented at SPP-ESPP, The First Joint Conference of the Society for Philosophy & Psychology and The European Society for Philosophy & Psychology*, Barcelona, SPAIN.
- Halberda, J.P. (2002). Word-learning as logical inference: The case of mutual exclusivity. *Talk presented at BUCLD, the Boston University Conference on Language Development*, Boston MA, USA.

Conference Posters (* indicates student or post-doc at time of event)

- *Sanford, E. M., & Halberda, J. (2019). The innateness of visual number: A case study using children's counting books. *Mathematical Cognition and Learning Society*, Ottawa, CA.
- *Sanford, E. M., & Halberda, J. (2019). The innateness of visual number: A case study using children's counting books. *Poster presented at VSS, the Vision Sciences Society*. May 17-21, St. Petersburg, FL.
- *Knowlton, T. W., Halberda, J., Pietroski, P. & Lidz, J. (2019). A novel task reveals early understanding of quantifier meanings. *Poster presented at SRCD, The Society for Research in Child Development*, March 21-23, Baltimore, MD.
- *Chroneos, M. Z., *Chan, D., *Zhu, P., *Little, P. & Halberda, J. (2019). Development of disjunctive syllogism as a word-learning strategy. *Poster presented at SRCD, The Society for Research in Child Development*, March 21-23, Baltimore, MD.
- *Knowlton, T., *Wong, A., Halberda, J., Pietroski, P., and Lidz, J. (2018) *Different Determiners, Different Algorithms: Two Majority Quantifiers in Cantonese Bias Distinct Verification Strategies*. 31st CUNY Conference on Human Sentence Processing, UC Davis.
- *Sanford, E. & Halberda, J. (2018). Estimating number from dot displays relies on a visual sense of number – not on size of spacing. *Poster presented at VSS, the Vision Sciences Society*. May 18-22, St. Petersburg, FL.
- *Yu, Q., Firestone, C., Flombaum, J., Bedny, M. & Halberda, J. (2018) Visual interference does not contaminate working memory: Testing the “perceptual reuse” theory. *Poster presented at VSS, the Vision Sciences Society*. May 18-22, St. Petersburg, FL.
- Halberda, J. (2018). What does it mean to visually estimate: Re-understanding internal noise as internal confidence for time, space and number. *Poster presented at VSS, the Vision Sciences Society*. May 18-22, St. Petersburg, FL.

- *Knowlton, T., Halberda, J., Pietroski, P., and Lidz, J. (2017) *Set Selection and Storage Reflect Differences in Quantifier Meanings*. McDonnell Network Plenary Workshop on "The Ontogenetic Origins of Combinatorial Thought," UCSD.
- *Knowlton, T., Halberda, J., Pietroski, P., and Lidz, J. (2017) *Distinguishing First- from Second-order Specifications of Each, Every, and All*. Seventh Mid-Atlantic Colloquium of Studies in Meaning (MACSIM), Georgetown.
- *Knowlton, T., Halberda, J., Pietroski, P., and Lidz, J. (2017) *Sentences, Centers, and Sets: Set Selection and the Meanings of More and Most*. Cognitive Development Society (CDS) 10th biennial meeting, Portland, OR.
- Odic, D., Pietroski, P., Hunter, T., Lidz, J., *Wong, A. & Halberda, J. (2017). The Interface Transparency Thesis (ITT) and the count/mass distinction in language and cognition. *Poster presented at SPP, The Society for Philosophy and Psychology 43rd Annual Meeting*, Baltimore, MD.
- *Ferres-Forga, N., Halberda, J. & Bonatti, L. L. (2017). Improving mathematical abilities with digit quantity relation training in children. *Poster presented at BCCCD, the Budapest CEU Conference on Cognitive Development*, Budapest, HUNGARY.
- *Ferres-Forga, N., Bonatti, L. L., & Halberda, J. (2017). Improving mathematical knowledge with approximate number comparison training in 7-8 year old children. *Poster presented at BCCCD, the Budapest CEU Conference on Cognitive Development*, Budapest, HUNGARY.
- *Wang, J., Odic, D., Halberda, J. & Feigenson, L. (2015). Temporary changes to children's ANS precision affect their symbolic math performance. *Poster presented at SRCD, the Society for Research on Child Development*, Philadelphia, PA.
- Zosh, J.M., *Verdine, B.N., Golinkoff, R.M., Hirsh-Pasek, K. & Halberda, J. (2015). SES and ANS: How socio-economic status impacts the relation between the approximate number system and mathematics performance. *Poster presented at CDS, The Cognitive Development Society*, October 8-10, Columbus, OH.
- *Odic, D., & Halberda, J. (2013). Visual magnitude comparison is massively parallel for objects and ensembles. *Poster presented at OPAM, Annual Meeting on Object Perception, Attention, and Memory*. Toronto, CANADA.
- *Wang, J., *Odic, D., Halberda, J. & Feigenson, L. (2013). Temporary enhancements to children's ANS precision improve their math performance. *Poster presented at CDS, The Cognitive Development Society*, October 18-19, Memphis, TN.
- Zosh, J.M., *Verdine, B.N., Halberda, J. Hirsh-Pasek, K., & Golinkoff, R. (2013). Which is more? Approximate number sense varies by SES in preschoolers. *Poster presented at the 2013 Meeting of The Society for Research in Child Development Conference*, April 18-20, Seattle, WA.
- *Pailian, H., *Libertus, M., Feigenson, L., & Halberda, J. (2013). Developmental Changes in Visual Short-Term Memory (VSTM) Capacity Between Ages 3 and 8 Years. *Poster presented at SRCD*, April 18-20 Seattle, WA.
- *Pailian, H., *Libertus, M., Feigenson, L., & Halberda, J. (2013). Measuring Individual Differences in Children's Visual Short-Term Memory Capacity using the Flicker Paradigm. *Poster presented at SRCD*, April 18-20 Seattle, WA.
- *Odic, D., *Wellwood, A., Lidz, J., & Halberda, J. (2013) How word meanings interface with cognition: a case-study of children's acquisition of 'most'. *Poster presented at SRCD 2013*, Seattle, Washington.
- *Odic, D., *Libertus, M., Feigenson, L., & Halberda, J. (2013) The quantity of quantity: are visual area and number represented by one system, or two? *Poster presented at SRCD 2013*, Seattle, Washington.
- *Eisinger, R., *Im, H., *Pailian, H. & Halberda, J. (2013). Ensemble-based Change Detection. *Poster presented at VSS, the Vision Sciences Society*. May 10-15, Naples, FL.
- *Im, H., *Zhong, S., & Halberda, J. (2013). Biases in human number estimation are well-described by clustering algorithms from computer vision. *Poster presented at VSS, the Vision Sciences Society*, May 6-11, Naples, FL.
- *Odic, D., *Libertus, M., Feigenson, L. & Halberda, J. (2012). The development of number and area acuity in young children. *Poster presented at The International Conference on Infant Studies (ICIS)*, June, Minneapolis, MN.
- *Pailian, H. & Halberda, J. (2012). The Cost of Manipulating Representations in Visual Working Memory. *Poster presented at VSS, the Vision Sciences Society*, May 6-11, Naples, FL.
- Halberda, J., Pietroski, P., *Hunter, T., *Odic, D., *Wellwood, A., & Lidz, J. (2012). More and Most: Spatial vision affects word understandings on an ipad. *Poster presented at VSS, the Vision Sciences Society*, May 11-16, Naples, FL.
- *Odic, D. & Halberda, J. (2012). Representations of difficulty and confidence in numerical discrimination. *Poster presented at VSS, the Vision Sciences Society*, May 11-16, Naples, FL.

- *Pailian, H., & Halberda, J. (2012). The cost of manipulating representations in working memory. *Poster presented at VSS, the Vision Sciences Society*, May 11-16, Naples, FL.
- *Im, H. & Halberda, J. (2012). Accurately modeling visual working memory performance at the individual trial level. *Poster presented at VSS, the Vision Sciences Society*, May 11-16, Naples, FL.
- *Ly, R., *Im, H., *Eisinger, R. & Halberda, J. (2012). Measuring the coefficient of variation with continuously varying arrays. *Poster presented at VSS, the Vision Sciences Society*, May 11-16, Naples, FL.
- *Eisinger, R., *Ly, R., *Im, H. & Halberda, J. (2012). Ensemble-based subitizing. *Poster presented at VSS, the Vision Sciences Society*, May 11-16, Naples, FL.
- *Libertus, M., Feigenson, L., & Halberda, J. (2011). Approximate number discrimination predicts later math ability in preschoolers. *Seventh Biennial Meeting of the Cognitive Development Society, Philadelphia, USA*.
- *Odic, D., Hock, H. and Halberda, J. (2011). The effect of confidence hysteresis on number perception and decision-making. *Poster presented at CogSci, the 33rd Annual Conference of the Cognitive Science Society*, July 20-23, Boston, MA.
- Halberda, J. (2011). An ensemble group functions as a single item for attention and memory. *Poster presented at VSS, the Vision Sciences Society*, May 6-11, Naples, FL.
- *Im, H. Y., *Zhang, W., & Halberda, J. (2011). Capacity and resolution for approximate number in perception and memory. *Poster presented at VSS, the Vision Sciences Society*, May 6-11, Naples, FL.
- *Odic, D., Hock, H., & Halberda, J. (2011). The effect of confidence hysteresis on numerical discrimination. *Poster presented at VSS, the Vision Sciences Society*, May 6-11, Naples, FL.
- *Pailian, H. & Halberda, J. (2011). Individual Differences in VWM Capacity Assessed by the Flicker Task. *Poster presented at VSS, the Vision Sciences Society*, May 6-11, Naples, FL.
- *Vogel, S., *Price, G., Halberda, J., *Ly, R. & Ansari, D. (2011). Cerebral correlates of non-symbolic numerical magnitude processing: the role of surface area. *Poster presented at HBM, Human Brain Mapping*, June 26-30, Quebec City, Canada.
- *Slusser, E.B., Shusterman, A., Halberda, J. & *Odic, D. (2011). The role of non-verbal numerical representations in the acquisition of early number word meanings. *Poster presented at JPS, 41st Annual Meeting of the Jean Piaget Society*, June 2-4, Berkeley, California.
- Mazzocco, M., Feigenson, L. & Halberda, J. (2011). Impaired Acuity of the Approximate Number System Underlies Mathematical Learning Disability (Dyscalculia). *Poster presented at SRCD, the Society for Research in Child Development*, March 31- April 2, Montreal, Quebec.
- *Odic, D., *Hunter, T., Lidz, J.L., Pietroski, P., Steven-White, A. & Halberda, J. (2011). Children's understanding of mass-noun "more". *Poster presented at SRCD, the Society for Research in Child Development*, March 31- April 2, Montreal, Quebec.
- *Libertus, M., *Stevenson, A., *Odic, D., Feigenson, L. & Halberda, J. (2011). The Developmental Vocabulary Assessment for Parents (DVAP): A Novel Tool to Measure Vocabulary Size in 3- to 5-year-old Children. *Poster presented at SRCD, the Society for Research in Child Development*, March 31- April 2, Montreal, Quebec.
- Mazzocco, M., Halberda, J. & Feigenson, L. (2011). Precision of the Approximate Number System (ANS) Predicts Later Mathematics Performance. *Poster presented at SRCD, the Society for Research in Child Development*, March 31- April 2, Montreal, Quebec.
- Shusterman, A., Slusser, E.B., Halberda, J. & *Odic, D. (2011). Connecting Early Number Word Knowledge and Approximate Number System Acuity. *Poster presented at SRCD, the Society for Research in Child Development*, March 31- April 2, Montreal, Quebec.
- *Im, H. Y. & Halberda, J. (2010). The time course of consolidation of ensemble feature in visual working memory. *Poster presented at VSS, the Vision Sciences Society*, Naples, FL.
- *Odic, D., *Ly, R., *Hunter, T., Pietroski, P., Lidz, J. & Halberda, J. (2010). Number and area perception engage similar representations: evidence from a discrimination task. *Poster presented at VSS, the Vision Sciences Society*, Naples, FL.
- Halberda, J., Le Corre, M., *Odic, D. & *Stevenson, A. (2010). Young children's mapping between exact and approximate meanings for number words. *Poster presented at ICIS, the International Conference on Infant Studies*, March 11-14, Baltimore, MD.
- Halberda, J. & Nichols, S. (2010). Young children's understanding of possible and impossible events in a physical probability device. *Poster presented at ICIS, the International Conference on Infant Studies*, March 11-14, Baltimore, MD.

- *Ly, R., *Im, H. Y. & Halberda, J. (2009). Spatial overlap of collections affects the resolution of ensemble features. *Poster presented at VSS, the Vision Sciences Society*, May 8-13, Naples Florida.
- *Spiegel, C., *Yamaguchi, M., Heverly-Fitt, S. & Halberda, J. (2009). Children's use of Disjunctive Syllogism in mapping novel voices to novel characters. *Poster presented at SRCD, the Society for Research in Child Development*, April 2-4 Denver, CO.
- *Yamaguchi, M., Austin, R., Halberda, J., & Feigenson, L. (2009). Preschoolers' use of mutual exclusivity in a social context. *Poster presented at SRCD, the Society for Research in Child Development*, April 2-4 Denver, CO.
- *Spiegel, C., Nishimura, M., Hritz, A., & Halberda, J. (2009). Toddlers learn multiple new words in 3 seconds flat. *Poster presented at SRCD, the Society for Research in Child Development*, April 2-4 Denver, CO.
- Halberda, J., Lidz, J., *Hunter, T., Pietroski, P., & Ekman, K. (2009). Development of "most" comprehension in 42-60 month olds. *Poster presented at SRCD, the Society for Research in Child Development*, April 2-4 Denver, CO.
- *López-González, M., Legendre, G. & Halberda, J. (2008). Acquisition of Spanish's ser and estar: Experimental evidence for insensitivity to copular semantics. *Poster presented at IASCL08, the International Congress for the Study of Child Language*, July 28 – August 1, Edinburgh, SCOTLAND.
- *Zosh, J., Feigenson, L. & Halberda, J. (2008). Parallel enumeration of multiple spatially-overlapping sets in infancy. *Poster presented at ICIS, the International Conference on Infant Studies*, Vancouver BC, CANADA.
- *Spiegel, C., *Zosh, J. & Halberda, J. (2008). Children use Disjunctive Syllogism and fast-mapping to learn multiple novel labels in a single session. *Poster presented at ICIS, the International Conference on Infant Studies*, Vancouver BC, CANADA.
- Halberda, J. (2007). Subitizing sets and set-based selection: Early visual features determine what counts as an individual for visual processing. *Poster presented at VSS, the Vision Sciences Society*, Sarasota, FL.
- *Zosh, J. M., Feigenson, L., & Halberda, J. (2007). Infants' ability to enumerate multiple spatially-overlapping sets in parallel. *Poster presented at VSS, the Vision Sciences Society*, Sarasota, FL.
- *Yamaguchi, M., Halberda, J., & Feigenson, L. (2007). Preschoolers' use of mutual exclusivity for mapping individual faces & voices. *Poster presented at SRCD, the Society for Research in Child Development*, Boston, MA.
- *Zosh, J., Brinster, M. & Halberda, J. (2007). Inference is Better Than Instruction. *Poster presented at SRCD, the Society for Research in Child Development*, Boston MA, USA.
- Franconeri, S., Halberda, J., Alvarez, G., & Feigenson, L., (2004). Common fate can define objects in multiple-object tracking. *Poster presented at VSS, the Vision Sciences Society*, Sarasota, FL.
- Halberda, J.P. (2003). Two-year-olds' fast-mapping of novel labels: How fast is fast? *Poster presented at SRCD, the Society for Research in Child Development*, Tampa Bay, FL.
- Feigenson, L. & Halberda, J.P. (2002). Looking at the limits on numerical ability: Infants chunks large sets into smaller sets. *Poster presented at ICIS, the International Conference on Infant Studies*, Toronto, CANADA.
- Sorrentino, C. M. & Halberda, J.P. (2001). Do multiple proper names indicate multiple individuals? Evidence from children and adults. *Poster presented at SRCD, the Society for Research on Child Development*, Minneapolis, MN.
- Halberda, J.P. (2000). The novel label/novel object strategy: A case of developmental discontinuity? *Poster presented at ICIS, the International Conference on Infant Studies*, Brighton, ENGLAND.
- Halberda, J.P. (1999). Do novel labels go with novel objects? Evidence from a new word learning paradigm. *Poster presented at SRCD, the Society for Research on Child Development*, Albuquerque, NM.
- Rayls, K., Waid L. R., & Halberda, J. P. (1998). Correlates of attention deficit disorder in adults: Differential diagnosis. *Poster presented at APA, the Meeting of the American Psychological Association*, San Francisco, CA.
- Middaugh, L.D., Halberda, J.P., Gard, B.E. (1996). The DAD2-like agonist quinpirole produces monotonic reductions in motor activity of C57 mice. *Poster presented at Neuroscience, Society for Neuroscience Abstracts*, 22.

Professional Activities

Organizations and Societies

Association for Psychological Science
 Cognitive Development Society
 International Society on Infant Studies

Society for Research on Child Development
Vision Sciences Society

Grant Review Panels

National Science Foundation, April 2005
National Science Foundation (*ad hoc*), June 2009
National Science Foundation (*ad hoc*), April 2010
Various European Grant Reviews (*ad hoc*), 2009, 2010
National Science Foundation (*ad hoc*), November 2015
Various European Grant Reviews (*ad hoc*), 2018, 2019

Reviewing: Books, Pre-Doc & Post-Doc Grants, Others

Elsevier/Academic Press, 2016
National Science Foundation: Linguistics, Pre-Doctoral Fellowships, 2010
Cambridge University Press, book proposals in Cognitive Science, 2008
MIT Press, book proposals in Cognitive Science, 2010
Oxford University Press, book proposals in Psychology, 2008

Journal Reviewing: Ad Hoc

British Journal of Developmental Psychology

BUCLD Language Conference

Child Development

Cognition

Cognitive Neuropsychology

Cognitive Neuroscience

Cognitive Science

Current Biology

Developmental Science

Developmental Psychology

Infancy

Journal of Child Language

Journal of Communication Disorders

Journal of Experimental Child Psychology

*Journal of Experimental Psychology: Learning,
Memory & Cognition*

*Journal of Experimental Psychology: Human
Perception and Performance*

Journal of Vision

Language and Cognitive Processes

Language Learning & Development

Learning & Individual Differences

Memory & Cognition

Neuropsychologia

Neuroscience

Perception & Psychophysics

Philosophies

PLoS one

*PNAS (Proceedings of the National Academy
of Sciences)*

Psychological Review

Psychological Science

*Psychonomic Bulletin & Review
Science*

Trends in Cognitive Sciences

Graduate and Postdoctoral Advising

Current

Nicolò Cesana Arlotti - Director of Postdoctoral Research

Topics: Foundations of Logic in Human Infants

Emily Sanford - Director of Ph.D. Research.

Topics: Math Models of Number Perception, Number Cognition, Development & Logic

Qian Yu - Director of Ph.D. Research.

Topics: The Interface of Visual Perception and Visual Working Memory

Earlier

Jenny Jingjing Wang, PhD, Secondary Advisor of PhD research (w/ Lisa Feigenson), (2018).

Positions: 2018-present, Postdoctoral fellow with Liz Bonawitz, Rutgers University

Dissertation Title: "Costs of manipulating information in visual working memory," Department of Psychological and Brain Sciences, Johns Hopkins University

Hrag Pailian, PhD, Director of Ph.D. Research, (2015).

Positions: 2015-present, Postdoctoral fellow with George Alvarez, Harvard University

Dissertation Title: "Costs of manipulating information in visual working memory," Department of Psychological and Brain Sciences, Johns Hopkins University

Aimee Elyse Stahl, Examiner of PhD research, (2015).

Positions: 2015-present, Assistant Professor, Department of Psychology, The College of New Jersey

Dissertation Title: "The role of surprise in enhancing early learning," Department of Psychological and Brain Sciences, Johns Hopkins University

Darko Odic, PhD, Director of Ph.D. Research, (2014).

Positions: 2014-present, Assistant Professor, Department of Psychology, University of British Columbia

Dissertation Title: "Objects and Substances in Vision, Language, and Development," Department of Psychological and Brain Sciences, Johns Hopkins University

Hee Yeon Im, PhD, Director of PhD Research, (2013).

Positions: 2015-present, Postdoctoral fellow with Kestas Kveraga, Harvard Medical School

2014-2015, Postdoctoral fellow with Joo-Hyun Song, Brown University

Dissertation Title: "An exploration of ensemble visual processing through perception, attention and memory," Department of Psychological and Brain Sciences, Johns Hopkins University

Melissa Libertus, PhD, Director of Postdoctoral Research.

Positions: 2013-present, Assistant Professor of Psychology, University of Pittsburgh

Mariko Moher, PhD, (née Yamaguchi), Secondary Advisor of PhD Research (w/ Lisa Feigenson), (2011).

Positions: 2011-2013, Postdoctoral fellow with Susan Carey, Harvard University

2013-2018, Assistant Professor of Psychology, Williams College, Williamstown, MA.

Dissertation Title: "Selection and representation of multiple items in working memory by infants," Department of Psychological and Brain Sciences, Johns Hopkins University

Jennifer Zosh, PhD, Secondary Advisor of PhD Research (w/ Lisa Feigenson), (2008).

Positions: 2009-present, Associate Professor of Human Development and Family Studies, Penn State University, Brandywine, PA.

Dissertation Title: "Beyond 'what' and 'how many': An investigation of working memory for objects in infancy," Department of Psychological and Brain Sciences, Johns Hopkins University

Rotation Students

Antonella Pomè, Visiting PhD student from David Burr's lab, University of Florence (2019)

Camilo Gouet, Visiting PhD student from Marcel Peña's lab, Pontifical Catholic University of Chile (2018)

Dora Kampis, Visiting PhD student from Ágnes Kovács' lab, Central European University (2015)

John Waterman, Rotating PhD student in Philosophy, Johns Hopkins University (2015)

Erin Zaroukian, Rotating PhD student in Cognitive Science, Johns Hopkins University (2008)

Mónica López-González, Rotating PhD student in Cognitive Science, Johns Hopkins University (2008)

Masters Students

Chad Spiegel, MA, Director of M.A. thesis committee. "Fast-mapping in two-year-olds: referent selection and referent retention of multiple novel labels" Department of Psychological and Brain Sciences, Johns Hopkins University (2009)

Positions: Senior Clinical Research Coordinator, The Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD.

Len Taing, MA, Director of M.A. thesis committee. "Counting in deaf and hearing individuals: An interaction of language and thought" Department of Psychological and Brain Sciences, Johns Hopkins University (2006)

Positions: Bioinformatics Engineer, Dana-Farber Cancer Institute, Harvard School of Public Health, Harvard University, Cambridge, MA.

Additional Graduate and Select Undergraduate Mentorship

Camilo Gouet, PhD, External examiner for PhD thesis, "The role of intuitive proportional reasoning in children's mathematical thinking," Escuela de Psicología de la Pontificia Universidad Católica de Chile (2018).

Nicolò Cesana Arlotti, PhD, External examiner for PhD thesis, "The origin of logical concepts." Department de Tecnologies de la Informació i les Comunicacions, Universitat Pompeu Fabra, Barcelona (2016).

John Waterman, PhD, External examiner for PhD thesis, "Shadows of doubt: on the psychological foundations of the skeptical problem." Department of Philosophy, Johns Hopkins University (2015).

Lilia Rissman, PhD, External examiner for PhD thesis, "Event participant representations and the instrumental role: A cross-linguistic study." Department of Cognitive Science, Johns Hopkins University (2013).

Erin Zaroukian, External examiner for Graduate Board Oral examination, "Quantification and (un)certainly" Department of Cognitive Science, Johns Hopkins University (2012).

Julie Krause, PhD, External examiner for PhD thesis, "What non-conceptual content should be" Department of Philosophy, Johns Hopkins University (2012).

Mónica López-González, PhD, External examiner for PhD thesis, "Ser and Estar: their syntax, semantics, pragmatics, and acquisition in Mexican Spanish" Department of Cognitive Science, Johns Hopkins University (2010).

Lisa Levers, PhD, External examiner for PhD thesis, "Mind, nature and normativity in Hume" Department of Philosophy, Johns Hopkins University (2010).

Eric Morton, PhD, External examiner for PhD thesis, "Naturalism, normativity, and the space of reason" Department of Philosophy, Johns Hopkins University (2009).

Viplav Saini, PhD, External examiner for PhD thesis, "Endogenous asymmetries in dynamic procurement auctions" Department of Economics, Johns Hopkins University (2009).

Christopher J. Metcalf, PhD, External examiner for PhD thesis, "Essays on the economics of innovation and technology" Department of Economics, Johns Hopkins University (2007).

Adam Buchwald, PhD, External examiner for PhD thesis, "Sound structure representation, repair and well-formedness: Grammar in spoken language production" Department of Cognitive Science, Johns Hopkins University (2006).

Beth Flaherty, Director of B.A. Honors thesis, Johns Hopkins University (2013).

Rachel Austin, Member of B.A. Honors thesis committee, Johns Hopkins University (2010).

Arin Tuerk, Member of B.A. Honors thesis committee, Johns Hopkins University (2008).

Meredith Brinster, Director of B.A. Honors thesis, Johns Hopkins University (2007).

Turner Cobden, Director of B.A. Honors thesis, Johns Hopkins University (2007).
Jared Saletin, Member of B.A. Honors thesis committee, Johns Hopkins University (2007).
Dylan Selterman, Member of B.A. Honors thesis committee, Johns Hopkins University (2006).

Courses Taught

Positive Psychology,

Undergraduate Intro-level Lecture & Section, ≈ 60 students per semester
Johns Hopkins University, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019

Advanced Seminar in Vision, (w/ related faculty)

Graduate Seminar, ≈ 15 students per semester
Johns Hopkins University, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015,
2016, 2017, 2018, 2019

Foundations of Mind, (w/ Lisa Feigenson)

Undergraduate Intro-level Lecture & Lab, ≈ 60 students per semester
Johns Hopkins University, 2005, 2006, 2007, 2008, 2009, 2011, 2012, 2014, 2015, 2016

Graduate Seminar in Semantics and Language Acquisition, (w/ Jeff Lidz & Paul Pietroski)

Graduate Seminar, ≈ 12 students per semester
University of Maryland, Linguistics, 2006, 2013, 2017

Older Courses

Careers in Psychology, (w/ related faculty)

Undergraduate Intro-level Survey & Talk Series, ≈ 100 students per semester
Johns Hopkins University, 2008, 2009, 2010, 2011, 2012, 2013

Advanced Seminar in Cognitive Psychology, (w/ related faculty)

Graduate Survey Seminar, ≈ 12 students per semester
Johns Hopkins University, 2004, 2006, 2008, 2010

Advanced Practicum in Teaching,

Graduate Seminar, ≈ 3 students per semester
Johns Hopkins University, 2008, 2009, 2010, 2011, 2012, 2013

Mental Models, Mental Logic,

Undergraduate Upper-level Seminar, ≈ 15 students per semester
Johns Hopkins University, 2004, 2005

Advanced Seminar in Cognitive Development, (w/ Lisa Feigenson)

Graduate Seminar, ≈ 12 students per semester
Department d'Etudes Cognitives, ENS, Paris, 2004

Advanced Seminar in Cognitive Development, (w/ Barbara Landau)

Graduate Seminar, ≈ 10 students per semester
Johns Hopkins University, 2008

Origins of Knowledge,

Undergraduate Intro-level Lecture & Lab, ≈ 20 students per semester
Teaching Fellow, Harvard University, 2003

Cognitive Psychology,

Undergraduate Intro-level Lecture & Section, ≈ 20 students per semester
Teaching Fellow, Harvard University, 2001

Evolutionary Psychology,

Undergraduate Intro-level Lecture & Section, ≈ 25 students per semester
Teaching assistant, New York University, 2000

Introductory Logic I & II,

Undergraduate One-on-One Tutoring, ≈ 10 students per semester

Teaching assistant, College of Charleston, 1997
Physiological Psychology Lab,
Undergraduate Rodent Lab Course, ≈ 20 students per semester
Teaching assistant, College of Charleston, 1996

Examples of Service To The Discipline

- *Conference Organizer*, "The development of set and quantifier representations," A meeting of the James S. McDonnell Foundations of Logic Network. Baltimore, MD, May 11-12, 2018.

Examples of Departmental and University Service

- *Director of Undergraduate Studies*, Department of Psychological and Brain Sciences, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019.
- *Director of Undergraduate Steering Committee in Psychology*, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019.
- *Faculty Advisor to Psi Chi*, National Honors Society in Psychology, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019.
- *Departmental Liaison for Research Library Services*, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019.
- *Chair of Ad hoc promotion committee* 2019.
- *JHU Excellence in Teaching Awards Committee* (voting member), 2013.
- *Chair of search committee for Teaching Professor in Clinical Psychology*, 2012, 2013.
- *Fullbright Grantee Interviewer* (Panel member), 2010.
- *Advisory Board, JHU Teaching Certification*, 2010.
- *Review of Academic Assessment for Psychology*, regional and federal accreditation, 2008, 2009, 2010, 2013.
- *Rhodes Scholar Finalist Interviewer* (Panel member), 2009.
- *Search Committee for University Social Sciences Research Librarian*, 2005, 2006, 2007