

HILARY RICHARDSON

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ACADEMIC POSITIONS

Lecturer, Department of Psychology, University of Edinburgh 2020-Present

Postdoctoral Research Fellow, Laboratories for Cognitive Neuroscience 2018-2020
Boston Children's Hospital & Harvard Medical School (PI: Dr. Charles Nelson)

EDUCATION

Ph.D. in Neuroscience, Department of Brain and Cognitive Science 2012-2018
Massachusetts Institute of Technology (PI: Dr. Rebecca Saxe)
Thesis: Developing a Theory of Mind: Insights from FMRI Studies of Children

B.S. in Brain, Behavior, and Cognitive Science 2006-2010
University of Michigan, Ann Arbor

FELLOWSHIPS & AWARDS

Whitaker Health Sciences Fund Fellowship 2017-2018

American Psychological Foundation Koppitz Graduate Student Fellowship *Declined*

National Science Foundation Graduate Research Fellowship 2014-2017

Young Scholars Award for the Social Neuroscience Perspectives on Child Development meeting, sponsored by SRCD and the Jacob's Foundation Fall 2015

MIT Brain and Cognitive Sciences Graduate Student Travel Award Fall 2015

Angus MacDonald Award for Excellence in Undergraduate Teaching Fall 2013, Fall 2014

MIT School of Science Spot Award Summer 2014

Hubert Schoemaker Fellowship 2013-2014

Regents Merit Scholarship Fall 2006

IN PREP & UNDER REVIEW PUBLICATIONS

Richardson, H., Taylor, J., Kane-Grade, F., Powell, L., Bosquet-Enlow, M., Nelson, C. (submitted). Preferential Responses to Faces in Superior Temporal and Medial Prefrontal Cortex in Three-Year-Old Children.

PEER-REVIEWED PUBLICATIONS

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, 3246.

Richardson, H., Gweon, H., Dodell-Feder, D., Malloy, C., Pelton, H., Keil, B., Kanwisher, N., Saxe, R. (2020). Response Patterns in the Developing Social Brain are Organized by Social and Emotion Features and Disrupted in Children Diagnosed with Autism Spectrum Disorder. *Cortex*, 125, 12-29.

Richardson, H., Saxe, R. (2019). Development of Predictive Responses in Theory of Mind Brain Regions. *Developmental Science*, e12863.

Richardson, H. (2019). Development of Brain Networks for Social Functions: Confirmatory Analysis in a Large, Open Source Dataset. *Developmental Cognitive Neuroscience*, 37, 100598.

Richardson, H., Lisandrelli, G., Riobueno-Naylor, A., Saxe, R. (2018). Development of the Social Brain from Age Three to Twelve Years. *Nature Communications*, 9(1), 1027.

Kliemann, D., **Richardson, H.**, Anzellotti, S., Ayyash, D., Haskins, A., Gabrieli, J., Saxe, R. (2018) Cortical Responses to Dynamic Emotional Facial Expressions Generalize across Stimuli, and are Sensitive to Task-Relevance, in Adults with and without Autism. *Cortex*, 103, 24-43.

Koster-Hale, J.*, **Richardson, H.***, Velez-Alicea, N., Asaba, M., Young, L., Saxe, R. (2017). Mentalizing Regions Represent Continuous, Abstract Dimensions of Others' Beliefs. *Neuroimage*, 161, 9-18. (*joint first-authorship)

Deen, B., **Richardson, H.**, Dilks, D., Takahashi, A., Keil, B., Wald, L., Kanwisher, N., Saxe, R. (2017). Category-Sensitive Visual Cortex in Human Infants. *Nature Communications*, 8, 13995.

Lane, C., Kanjlia, S., **Richardson, H.**, Fulton, A., Omaki, A., Bedny, M. (2016) Reduced Left-Lateralization of Language in Congenitally Blind Individuals. *Journal of Cognitive Neuroscience*, 29(1), 65-78.

Bedny, M., **Richardson, H.**, Saxe, R. (2015). "Visual" Cortex Responds to Spoken Language in Blind Children. *The Journal of Neuroscience*, 35(33), 11674-11681.

Koldewyn, K., Yendiki, A., Weigelt, S., Gweon, H., Julian, J., **Richardson, H.**, Malloy, C., Saxe, R., Fischl, B., Kanwisher, N. (2014). Differences in the Right Inferior Longitudinal Fasciculus but No General Disruption of White Matter Tracts in Children with Autism Spectrum Disorder. *Proceedings of the National Academy of Sciences*, 111(5), 1981-1986.

CONFERENCE PROCEEDINGS

Richardson, H., Baker, C., Tenenbaum, J., & Saxe, R. (2012). The Development of Joint Belief-Desire Inferences. In *Proceedings of the Annual Meeting of the Cognitive Science Society* (Vol. 34, No. 34).

BOOK CHAPTERS

Richardson, H., Saxe, R. (2020). Early Signatures and Developmental Change in Brain Regions for Theory of Mind. In J. Rubenstein & P. Rakic (Eds.) *Neural Circuit and Cognitive Development, Second Edition, Volume 2*.

Richardson, H., Saxe, R. (2016). Using MRI to Study Developmental Change in Theory of Mind. In J. Sommerville & J. Decety (Eds.) *Social Cognition: Development Across the Life Span*, 210.

ESSAYS

Richardson, H. (2012). New Discoveries about the Developing Brain. *Future Reflections*, 31 (1).

INVITED TALKS

Duckworth, Seligman, & Mackey Group Meeting, Department of Psychology, University of Pennsylvania (September 28, 2020; Virtual Presentation).

Department of Psychology, School of Philosophy, Psychology, and Language Sciences, The University of Edinburgh (February 19, 2020; Edinburgh, Scotland).

Department of Psychology, Durham University (December 4, 2019; Durham, England).

Center for Depression, Anxiety, and Stress Research, McLean Hospital (November 11, 2019; Belmont, MA).

Moral Psychology Research Lab, Department of Psychology, Harvard University (September 19, 2019; Cambridge, MA).

Neuroplasticity and Development Lab, Department of Psychological & Brain Sciences, Johns Hopkins University (May 10, 2019; Baltimore, MD).

Nelson Laboratory, Laboratories of Cognitive Neuroscience, Boston Children's Hospital (March 26, 2018; Boston, MA).

Social Cognition Debates series at the Center for Brain and Cognition, Universitat Pompeu Fabra (February 8, 2018; Barcelona, Spain).

Center for Brain and Cognition, Universitat Pompeu Fabra (January 12, 2018; Barcelona, Spain).

Department of Experimental Psychology, University of Oxford (November 23, 2017; Oxford, England).

Social, Genetic & Developmental Psychiatric Department, King's College (November 22, 2017; London, England).

Morality Lab, Department of Psychology, Boston College (June 28, 2017; Boston, MA).

Social Learning Lab, Department of Psychology, Stanford University (April 3, 2017; Palo Alto, CA).

Department of Brain and Cognitive Sciences CogLunch Talk Series, Massachusetts Institute of Technology (February 28, 2017; Cambridge, MA).

Department of Brain and Cognitive Sciences CogLunch Talk Series, Massachusetts Institute of Technology (May 5, 2015; Cambridge, MA).

CONFERENCE PRESENTATIONS - TALKS

Development of Predictive Responses in Theory of Mind Brain Regions. Society for Research in Child Development (March 21-23, 2019; Baltimore, MD).

How Language Facilitates Theory of Mind Development: Behavioral and fMRI Evidence from Individuals with Delayed Access to Language. Society for Neuroscience Conference (Nov. 3-7, 2018; San Diego, CA).

Development of Predictive Responses in Theory of Mind Brain Regions. Association for Psychological Science Annual Convention (May 24-27, 2018; San Francisco, CA).

Development of the Social Brain from Age Three to Twelve Years. Budapest CEU Conference on Cognitive Development (Jan 4-6, 2018; Budapest, Hungary).

Conceptual Development in Theory of Mind is Reflected in Emerging Neural Distinctions. Social Neuroscience Perspectives on Child Development meeting, sponsored by the Society for Research in Child Development (Sept 16-17, 2015; Leiden, the Netherlands).

Children Use Source and Quality of Evidence to Evaluate Beliefs. Budapest CEU Conference on Cognitive Development (Jan 8-10, 2015; Budapest, Hungary).

Children Use Source and Quality of Evidence to Evaluate Beliefs. The Social Neuroscience of Autism Symposium (July 11-12, 2014; Berlin, Germany).

Children Use Source and Quality of Evidence to Evaluate Beliefs. Society for Philosophy and Psychology (June 18-21, 2014; Vancouver, British Columbia).

The Development of Joint Belief-Desire Inferences. Cognitive Science Society (Aug 2-4, 2012; Sapporo, Japan).

CONFERENCE PRESENTATIONS - POSTERS

The Neural Basis of Theory of Mind in Early Childhood. Poster presentation. Society for Research on Child Development Biennial Meeting (April 6-8, 2017; Austin, TX).

The Neural Basis of Theory of Mind in Early Childhood. Poster presentation, Early Experience and Sensitive Periods in Development (Aug 31-Sept 5, 2016; Erice, Sicily).

Conceptual Development in Theory of Mind is Reflected in Emerging Neural Distinctions. Poster presentation, Flux Congress (Sept 16-19, 2015; Leiden, the Netherlands).

A Longitudinal FMRI Study Examining Theory of Mind Development. Poster presentation, Cognitive Development Society biennial meeting (Oct 18-19, 2013; Philadelphia, PA).

PUBLICLY AVAILABLE RESEARCH CONTRIBUTIONS

FMRI Dataset of 3 – 12 year old children viewing Disney Pixar’s “Partly Cloudy”

Includes anatomical as well as functional MRI data.

Includes summary scores on several cognitive tasks and demographic information.

Publicly available at <https://openneuro.org/datasets/ds000228>

Downloaded >530 times.

Behavioral task designed to measure ToM reasoning in children, longitudinally.

Includes matched items and items varying in difficulty, for simultaneous measurement of developmental change and individual differences.

Publicly available at osf.io/spqgc

TEACHING AND MENTORSHIP

Specialist Techniques in Psychological Research (MSc course; fNIRS module) Fall 2020

Brain Imaging in Cognitive Neuroscience (MSc course; fMRI & ToM module) (Spring 2021)

Topics in Infant and Early Childhood Cognition (TA for Dr. Laura Schulz) Fall 2013, 2015

FMRI Investigations of the Human Brain (TA for Dr. Nancy Kanwisher) Fall 2014

Organized and led fNIRS bootcamp (with Dr. Laura Pirazzoli; 2019, 2020) and weekly reading groups on emotion processing (2018-2020), theory of mind (2013), and topics in cognitive development (2012).

Advised full-time research assistants: Julianne Herts, Grace Lisandrelli, Lyneé Alves, Finola Kane-Grade, Jeb Taylor.

Advised undergraduate students: Tyler LeComer (honors thesis student, Harvard University; 2018), Alexa Riobueno-Naylor (2015-2017), Sophie Crocker (2015), Maddie Koh (2015), Colleen Gabel (2013-2014), Mika Asaba (2012-2014), Helen Lee (2012), John Tebes (2011).

Personal tutor (academic advisor) for 17 third-year undergraduate students Fall 2020

PROFESSIONAL ACTIVITIES

Developed an interdisciplinary preconference preceding the bi-annual conference for the Cognitive Development Society titled “Early Development, Conceptual Change, and Continuity: Insights from Cognitive Neuroscience.” (14 speakers, > 50 participants; Fall 2015).

Ad hoc reviewer for Cognition, Developmental Cognitive Neuroscience, Developmental Science, Journal of Cognitive Neuroscience, Neuroimage, Neuropsychologia, Scientific Reports, Social Neuroscience.

OUTREACH

Prepared and presented engaging activities and lessons for:

Abigail Adams preschool	Summer 2015
Field trip to MIT by the Science Club for Girls	Winter 2015
Family Fall Festival, Cambridge YMCA	Fall 2014
Field trip to MIT by Roxbury Prep charter school	Summer 2013
Cambridge Science Festival	Spring 2010

MEDIA COVERAGE

<http://news.mit.edu/2018/study-finds-early-signatures-social-brain-0312>

<http://www.psychologicalscience.org/observer/i-feel-your-pain-the-neuroscience-of-empathy>

<https://www.bostonglobe.com/metro/2018/03/12/mit-brain-scans-show-children-young-can-understand-people-feelings/VZL0XYrWHFptyUeOclSLEP/story.html>

<https://www.upi.com/Theory-of-mind-networks-develop-in-the-brains-of-children-by-age-three/7271520865836/>

<https://www.sciencedaily.com/releases/2018/03/180312085109.htm>

<http://www.healthimaging.com/topics/neuroimaging/mit-brains-young-children-able-interpret-mental-states-others>

<http://www.radiologybusiness.com/topics/technology-management/fmri-shows-3-year-olds-have-brain-networks-understand-others>

<http://www.lavanguardia.com/ciencia/cuerpo-humano/20180314/441507665965/teoria-mente-cerebro-social-edad-temprana-3-anos-mit.html>

<http://www.quo.es/ciencia/primeras-muestras-del-cerebro-social>