

Lauren L. Emberson

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Academic Appointments

- 2015– **Assistant Professor**, *Princeton University*.
Department of Psychology
Maternity leave for academic year of 2017-2018
- 2018–2019 **Visiting Research Professor**, *Vanderbilt University*.
Department of Psychological Sciences
Sponsor: Prof. Isabel Gauthier
- 2012–2015 **Postdoctoral Associate**, *University of Rochester*.
Department of Brain & Cognitive Sciences
Advisor: Dr. Richard Aslin
- 2010–2011 **Visiting Research Fellow**, *Brown University*.
Department of Cognitive, Linguistic, & Psychological Sciences,
Advisor: Dr. Dima Amso
- 2008–2010 **Visiting Graduate Student**, *Sackler Institute for Developmental Psychobiology*.
Weill-Cornell Medical College, New York Presbyterian Hospital
Cornell Linkage Program
Ithaca-Manhattan Graduate Initiative In Neuroscience Program (Honorary Member)
Advisors: Drs. Dima Amso, Jason Zevin & Bruce McCandliss

Education: Degrees

- 2006–2011 **Ph.D**, *Cornell University*.
Psychology Department
Focus: Perception, Cognition and Development
Minor: Cognitive Science
Advisors: Drs. Michael Goldstein (chair) & Dima Amso
Dissertation Title: *On the Dynamic Interaction of Perceptual and Learning and Memory Systems: Mechanisms for Adaptive Perceptual Change*
- 2001–2005 **B.Sc in Cognitive Systems**, *University of British Columbia (UBC)*.
Specialization: Brain and Behaviour
Thesis advisor: Dr. Lawrence Ward
Thesis Title: *Somewhat Noisy Brains See Better: Prestimulus EEG Dynamics and Perceptual Performance*

Research Funding & Fellowships

- 2018-2019 **Bill and Melinda Gates Foundation Funding: Developmental Neuroimaging Consortium**, *role: fNIRS Team Leader*.
Budget: \$80,000.00
- 2017-2023 **James S. McDonnell Foundation Understanding Human Cognition Scholars Award**, *Title: Does Top-Down Processing Support Infant Development?*.
Budget: \$600,000.00
- 2016 **Eric and Wendy Schmidt Transformative Technology Fund, CoPIs: Piazza, Hasson, Lew-Williams**, *Title: Novel Dual-Brain Imaging Device for Assessing Dynamic Brain-to-Brain Coupling Between Infants and Caregivers: A New Biomarker for Communicative Disorders*.
Budget: \$577,000.00
- 2016 **250th Anniversary Fund for Innovation in Undergraduate Research**, *Title: Undergraduate Research Projects in a Required Course: Making Publication Possible*.
Budget: \$16,850.00
- 2014-2018 **National Institute for Child Health & Development (NICHD) K99R00 Pathway to Independence**, *Title: Role of Statistically Induced Changes in Sensory Cortex in Perceptual Development*.
Budget: \$914,237.00

- 2013–2015 **Canadian Institutes of Health Research (CIHR) Postdoctoral Fellowship and Research Funding**,
Title: Identifying Biomarkers for Developmental Delays in Infants Born Prematurely, Mentor: Dr. Richard Aslin; Co-mentor: Dr. Janet Werker.
 Similar to the NRSA postdoctoral fellowship. Scored in the 8th percentile
- 2011 **Sage Graduate Fellowship**, *Cornell University*.
- 2008–2010 **Post-Graduate Student Scholarship National Science and Engineering Counsel (NSERC-PGS)**.
 Similar to the NSF graduate research fellowship
- 2006–2010 **Sage Graduate Fellowship: Summer Funding**, *Cornell University*.
- 2006–2007 **Sage Graduate Fellowship**, *Cornell University*.
- 2004 **Summer Research Fellowship**, *Discover McGill Behavioral Cognitive Neuroscience Program*, McGill University.
 Advisor: Dr. Evan Balaban; Co-advisor: Dr. Daniel Levitin

Awards & Travel Fellowships

- 2018 **Society for fNIRS: Early Investigator Award (awarded biennially)**, *One of 3 finalists*.
- 2018 **Boyd McCandless Award: Early Career Award for APA Division 7, Developmental Psychology**.
- 2016 **Association for Psychological Science (APS) Rising Star Award**.
- 2013 **Travel award to attend the Annual Meeting of the International Society for Developmental Psychobiology**, *San Diego, CA*.
- 2013 **Fellowship to attend Maryland Neuroimaging Center Summer Institute: Developmental Cognitive Neuroscience**, *University of Maryland*.
- 2013 **University of Rochester Nominee to Blavatnik Award for Young Scientists**, *New York Academy of Sciences*, One of ten University of Rochester nominees.
- 2009 **NSF Student Travel Award**, *Cognitive Science Society*.
- 2009 **Fellowship to Attend the Future of Cognitive Science Meeting**, *University of California, Merced*.
- 2006–2010 **Graduate Conference Travel Awards (annually)**, *Graduate School*, Cornell University.
- 2007–2009 **Conference Travel Award (annually)**, *Cognitive Science Program*, Cornell University.
- 2008 **Merck Fellowship**, *Summer Institute on the Biology of Developmental Disabilities*, Cornell University.
- 2007 **Graduate Research Award**, *Psychology Department*, Cornell University.
 Funded research expenses for independent research project:
- 2007 **Travel Fellowship**, *Cognitive Science Program*, Cornell University.
 Funded travel to complete independent research project
- 2005 **Award of Excellence**, *Undergraduate Research Conference*, University of British Columbia.
- 2005 **People's Choice Award**, *Undergraduate Research Conference*, University of British Columbia.

Education: Workshops and Non-Degree Programs

- 2014 **Repetition Suppression Summer School**, *Jena, Germany*.
- 2013 **Maryland Neuroimaging Center Summer Institute: Developmental Cognitive Neuroscience**, *University of Maryland*.
- 2008 **Merck Fund Summer Institute on the Biology of Developmental Disabilities**, *Cornell University*.
- 2004 **Discover McGill Behavioural Cognitive Neuroscience Program**, *McGill University*.
 Summer Undergraduate Research Program

Peer-Reviewed Publications

Zhang, Y.†, Jaffe-Dax, S.†, Wilson, R., & Emberson, L. L. (in press). Prediction in infants and adults: A pupillometry study, *Developmental Science*

- Emberson, L. L.**, Boldin, A.,† Robertson, C.,† Cannon, G.,‡ & Aslin, R. N. (in press). Expectation Affects Neural Repetition Suppression in Infancy. *Developmental Cognitive Neuroscience*
- Boldin, A.,† Geiger, R.,‡ & **Emberson, L. L.** (2018). The Emergence of Top-Down, Sensory Prediction During Learning in Infancy: A Comparison of Full-term and Preterm Infants, *Developmental Psychobiology*, *60*(5), 544-556.
- Reuter, T.,†, **Emberson, L. L.**, Romberg, A., & Lew-Williams, C. (2018). Individual differences in nonverbal prediction and vocabulary size in infancy, *Cognition*, *176*, 215-219.
- Kersey, A. J.,†, & **Emberson, L. L.** (2017). Tracing Trajectories of Audio-visual Learning in the Infant Brain, *Developmental Science*, *20*(6), e12480.
- Karuza, E. A., **Emberson, L. L.**, Roser, M., Aslin, R. N., Cole, D. & Fiser, J. (2017). Neural signatures of spatial statistical learning: Characterizing the extraction of structure from complex visual scenes. *Journal of Cognitive Neuroscience*, *29*(12): 1963-1976.
- Zinszer, B. D., Bayet, L., **Emberson, L. L.**, Raizada, R. D. S., & Aslin, R. N. (2017). Decoding semantic representations from functional near-infrared spectroscopy signals. *Neurophotonics: sfNIRS 2016 Special Issue*, *5*(1): 011003.
- Emberson, L. L.**, Rizzieri, A.,‡, & Aslin, R. N. (2017). How Visual is Visual Prediction? *Infancy*, *22*(6): 748-761.
- Emberson, L. L.***, Zinszer, B. D.*, Raizada, R. D. S., & Aslin, R. N. (2017). Decoding the Infant Mind: Multichannel Pattern Analysis (MCPA) using fNIRS, *PLoS One*, *12*(4): e0172500.
- * these authors contributed equally to this publication
- Emberson, L. L.**, Crosswhite, S. L.,†, Richards, J. E., & Aslin, R. N. (2017). The Lateral Occipital Cortex Is Selective for Object Shape, Not Texture/Color, at 6 Months, *The Journal of Neuroscience*, *37*(13), 3698-3703.
- Emberson, L. L.** (2017). How Does Experience Support Development? Considering the Role of Top-Down Mechanisms. In Janette Benson (Ed.), *Advances in Child Development and Behavior* (Vol. 52, pp. 1-42). Elsevier: Cambridge, MA.
- Emberson, L. L.**, Boldin, A.,†, Riccio, J. E., Guillet, R., & Aslin, R. N. (2017). Deficits in Top-Down, Sensory Prediction in Infants At-Risk due to Premature Birth. *Current Biology*, *27*, 1-6.
- Emberson, L. L.**, Palmeri, H.,†, Cannon, G.,‡, Richards, J. E. & Aslin, R. N. (2017). Using fNIRS to Examine Occipital and Temporal Responses to Repetition in Young Infants: Evidence of Selective Frontal Cortex Involvement, *Developmental Cognitive Neuroscience*, *23*, 26-38.
- Emberson, L. L.**, Lewkowicz, D. J., & Bavelier, D. (2016). Perceptual Development. *Encyclopedia of Theory in Psychology* Ed. Harold Miller.
- Emberson, L. L.** (2016). Gaining Knowledge Mediates Changes in Perception (without Differences in Attention): A Case For Perceptual Learning. Commentary on Firestone & Scholl for *Brain and Behavioral Sciences*, *39*, 28-30.
- Goodwin, J. R., Cannaday, A. E., Palmeri, H.,†, Di Costanzo, A., **Emberson, L. L.**, Aslin, R. N., & Berger, A. J. (2016). Methodology for high-yield acquisition of functional near-infrared spectroscopy data from alert, upright infants. *Neurophotonics*, *3*, 3, 031415.
- Emberson, L. L.** & Rubinstein, D.,‡ (2016). Statistical Learning Is Constrained to Less Abstract Patterns in Complex Sensory Input (but not the Least). *Cognition*, *153*, 63-78.
- Emberson, L. L.**, Crosswhite, S. L.,†, Goodwin, J. R., Berger, A. J., & Aslin, R. N. (2016). Isolating the Effects of Systemic Vasculature in Infant Neuroimaging Experiments Using Short Distance Optical Channels: A Combination of Local and Global Effects. *Neurophotonics: sfNIRS 2014 Special Issue*, *3*, 3, 031406.
- Emberson, L. L.**, Richard, J. E., & Aslin, R. N. (2015). Top-down modulation in the infant brain: Learning-induced expectations rapidly affect the sensory cortex at 6 months. *Proceedings of the National Academy of Sciences*, *112*, 9585-9590.
- Aslin, R. N., Shukla, M., & **Emberson, L. L.**, (2015). Hemodynamic correlates of cognition in human infants. *Annual Review of Psychology*, *66*, 349-379.
- Karuza, E. A.*, **Emberson, L. L.*** & Aslin, R. N. (2014). *Invited Review: Combining fMRI and Behavioral Measures to Examine the Process of Human Learning*. *Neurobiology of Learning and Memory*, *109*, 193-206.
- * these authors contributed equally to this publication
- Emberson, L. L.**, Liu, R., & Zevin, J. D. (2013). Is Statistical Learning Constrained by Lower Level Perceptual Organization? *Cognition*, *128*: 82-102.
- #8 Hottest Article in Cognition** (ScienceDirect TOP25, April to June 2013)
- Emberson, L. L.** & Amso, D. (2012). Learning to Sample: Eye Tracking and fMRI Indices of Changes in Object Perception. *Journal of Cognitive Neuroscience*, *24*: 2030-2042.
- Emberson, L. L.**, Conway, C. M., & Christiansen, M. H. (2011) Timing is everything: Changes in Presentation Rate have

Opposite Effects on Auditory and Visual Implicit Statistical Learning, *Quarterly Journal of Experimental Psychology*, 64:1021-1040.

- Emberson, L. L.**, Lupyan, G., Goldstein, M. H., & Spivey, M. J. (2010). Overheard Cell-Phone Conversations: When Less Speech is More Distracting. *Psychological Science*, 21, 1383-1388.
- Doesburg, S. **Emberson, L. L.**, Rahi, A., Cameron, D., & Ward, L. M. (2008) Asynchrony from synchrony: Long-range gamma-band neural synchrony accompanies perception of audiovisual asynchrony in speech. *Experimental Brain Research*, 185, 11-20.

‡ undergraduate student

† graduate student, lab staff and postdocs

Manuscripts: Under Review, Invited

- Jaffe-Dax, S.†, Boldin, A.†, Daw, N. D. & **Emberson, L. L.**(under review). The computational role of top-down connections from the frontal cortex in infancy
- Reuter, T. E.†, Mazzei, C.†, Lew-Williams, C. & **Emberson, L. L.** (in revision). The emergence of verbal prediction in infancy: Unraveling the chicken-or-egg problem of comprehension and prediction. *Psychological Science*.
- Xiao, N. G.† & **Emberson, L. L.** (in revision). Infants Use Knowledge of Emotions to Augment Face Perception: Evidence of Top-down Perception Early in Life, *Cognition*
- Emberson, L. L.**, Jaekl, P., Tadin, D., & Aslin, R. N. (in revision). Visual Expectation Fails to Increase the Double-Flash Illusion, *Multisensory Research*
- Emberson, L. L.**, Mazzei, C.†, Loncar, N.‡, Treves, I. N. ‡ & Goldberg, A. (in revision). The Blowfish Effect: Children and Adults Use Atypical Exemplars to Infer Subordinate Categories during Word Learning, *Journal of Child Language*
- Emberson, L. L.**, Misyak, J. B., Schwade, J. A., Christiansen, M. H., & Goldstein, M. H. (in revision). Comparing Statistical Learning Across Perceptual Modalities in Infancy: An Investigation of Underlying Learning Mechanism(s), *Developmental Science*
- Emberson, L. L.** (invited for 2019). Neuroscience Research Methods. In Janette Benson (Ed.) *Encyclopedia of Infant and Early Childhood Development*, 2nd edition.
- Emberson, L. L.** (invited for 2019). The role of learning and memory in early visual development. Special Issue of *Psychology of Learning and Motivation*. (Eds. Diane Beck, Kara Federmeier).

‡ undergraduate student

† graduate student, lab staff and postdocs

Peer-Reviewed Conference Proceedings

- Jaffe-Dax S†, Boldin A.M.,† Daw N.D. & **Emberson, L. L.** (2017). Pre-term infants exhibit impaired prediction and learning in Audio-Visual association paradigm. In Gunzelmann G, Howes A, Tenbrink T and Davelaar EJ (Eds.), *Proceedings of the 39th Annual Conference of the Cognitive Science Society*, (p. 3740-3746). Austin, TX: Cognitive Science Society.
- Ward, L. M., Kirschner, A. **Emberson, L. L.** & Kitajo, K. (2011). Endogenous Neural Noise and Reaction Time. *Proceedings for the 27th Meeting of the International Society for Psychophysics*, 27: 293-298.
- Emberson, L. L.**, & Rubinstein, D.‡ (2010). Learning from Environmental Regularities is Grounded in Specific Objects not Abstract Categories. In S. Ohlsson and R. Catrambone (Eds.), *Proceedings for the 32nd Annual Conference of the Cognitive Science Society*, (p. 2518-2523). Austin, TX: Cognitive Science Society.
- Iricinschi, C., **Emberson, L. L.**, Onnis, L. & Edelman, S. (2010). Hand Posture Influences on Space and Language: Crossing the Hands Affects Word Order Processing. *Space in language: Proceedings of the Pisa International Conference*.
- Emberson, L. L.**, Liu, R., & Zevin, J. D. (2009). Statistics All the Way Down: How is Statistical Learning Accomplished Using Novel, Complex Sound Categories? In N. Taatgen and H. van Rijn (Eds.), *Proceedings of the 31st Annual Meeting of the Cognitive Science Society*. (p. 995-1000). Austin, TX: Cognitive Science Society.
- Emberson, L. L.**, Weiss, R. J., Barbosa, A. V., Vatikiotis-Bateson, E., & Spivey, M. J. (2008). Crossed hands curve saccades: Multisensory dynamics in saccade trajectories. In B. C. Love, K. McRae, & V. M. Sloutsky (Eds.), *Proceedings of the 30th Annual Conference of the Cognitive Science Society* (pp. 369-374). Austin, TX: Cognitive

Science Society.

Emberson, L. L., Kitajo, K., & Ward, LM. (2007) Endogenous neural noise and stochastic resonance, In S. M. Bezrukov (Ed.), *Proceedings of The Conference of Noise and Fluctuations in Biological, Biophysical, & Biomedical Systems*. 6602-6608.

‡ undergraduate student † graduate student, lab staff and postdocs

Teaching and Outreach

- 2016 **Instructor for PSY/NEU 405: Developmental Cognitive Neuroscience**, *Princeton University*.
Enrollment: 15 seniors majoring in Psychology, Neuroscience
- 2016 **Instructor for PSY 300: Research Methods in Psychology**, *Princeton University*.
Enrollment: 32 juniors majoring in Psychology
- 2015 **Instructor for PSY 300: Research Methods in Psychology**, *Princeton University*.
Enrollment: 43 juniors majoring in Psychology
- 2014 **Instructor for BCS/PHL 327: Theory of Perception**, *University of Rochester*, Co-taught with Dr. Alison Peterman, Faculty in Philosophy.
Enrollment: 16 upperclassmen and graduate students
Student Evaluation: 4.8/5
- 2014 **Instructor for BCS 205: Laboratory in Development and Learning**, *University of Rochester*.
Enrollment: 14 upperclassmen
Student Evaluation: 4.3/5
- 2013 **Instructor for BCS 205: Laboratory in Development and Learning**, *University of Rochester*.
Enrollment: 18 upperclassmen
Student Evaluation: 4.5/5
- 2012 **Invited Judge for the New York City Science and Engineering Fair (NYSEF)**, *City University of New York (CUNY)*.
Area: Behavioral and Social Sciences
- 2008 **Teaching Assistant for PSYCH 616/416: Modeling Perception and Cognition**, *Cornell University*.
Taught by Dr. Michael Spivey
Topic: Neural network and dynamic systems computational modelling
Student Evaluation: 4.6/5
- 2007–2008 **Graduate Student School Outreach Program (GSSOP)**, *Cornell University*.
Designed and taught mini-course: “Your Brain’s Illusions: Why scientists love to study trickery!”
2008: Sophomore Anatomy & Physiology Class, Ovid, NY
2007: AP Biology Class at Cascadilla School, Ithaca, NY
- 2007–2008 **Workshop Organizer and Teacher; Expand Your Horizons (EYH)**, *Cornell University*.
Program to Encourage Young Girls to Pursue Scientific and Mathematic Studies
Student evaluations (2008): 4.4/5
- 2007 **Course development and teaching of PSYCH 103 freshman seminar**, *Cornell University*.
Course title: “This is Your Brain on Happiness”
Student Evaluation: 4.7/5
- 2005–2006 **Head Teaching Assistant for Cognitive Systems 200**, *University of British Columbia*.
Duties included:
administrative contact for 200+ student class
co-ordinated grading of exams and class projects
organized and guided student groups for final project

Selected Invited Talks

- 2018 **Statistical Learning Workshop**, *Haskins Laboratory and Yale University*.
- 2018 **Computational Cognitive Neuroscience Series**, *Vanderbilt University*.
- 2018 **Developmental Brown Bag**, *University of California, Davis*.

- 2018 **Bill & Melinda Gates Foundation: Neuroimaging Workshop**, *Seattle, Washington.*
- 2018 **James S. McDonnell Foundation: Understanding Human Cognition Scholars Conference**, *Oxford, England.*
- 2018 **Psychology Colloquium**, *Carnegie Mellon University.*
- 2018 **University Seminar on Language & Cognition**, *Columbia University.*
- 2018 **Developmental Brown Bag**, *Yale University.*
- 2017 **Speech, Language, Hearing Sciences Colloquium**, *City University of New York, CUNY.*
- 2017 **Colloquium at Center for Human Health and Development**, *University of Michigan.*
- 2017 **Development and Learning Brown Bag**, *University of Tennessee at Knoxville.*
- 2017 **Cognitive Science of Learning Colloquium**, *Vanderbilt University.*
- 2017 **Cognitive Science Colloquium**, *Princeton University.*
- 2016 **Psychology Colloquium**, *Drexel University.*
- 2016 **Cognitive Science Colloquium**, *University of Arizona.*
- 2016 **First and Second Language Acquisition Workshop**, *Hebrew University.*
- 2015 **Neuroscience in Social Decision Making**, *Princeton University.*
- 2015 **Yale-Shimidzu BrainSTORM Workshop on fNIRS**, *Yale University.*
- 2015 **Pre-conference Workshop: Early development, conceptual change, and continuity: Insights from cognitive neuroscience**, *Cognitive Development Society.*
- 2015 **Social Brown Bag**, *Princeton University.*
- 2015 **Society for Neuroscience Rochester Chapter**, *University of Rochester Medical Center.*
- 2015 **Departmental Colloquium**, *Psychology Department, Hobart & William Smith.*
- 2015 **Developmental Area Meeting**, *Psychology Department, University of British Columbia.*
- 2014 **Departmental Colloquium**, *Psychology Department, University of Massachusetts, Amherst.*
- 2014 **Departmental Colloquium**, *Psychology Department, Princeton University.*
- 2014 **Departmental Colloquium**, *Psychology Department, University of California, San Diego.*
- 2014 **Departmental Colloquium**, *Psychology Department, University of Toronto, Scarborough.*
- 2014 **Pre-Conference Workshop: Learning to Attend, Attending to Learn: Neurological, Behavioral and Computational Perspectives**, *Society for Neuroscience, San Diego, CA, 2013..*
- 2013 **Weekly Seminar Series**, *Laboratory for Laser Energetics (LLE), University of Rochester..*
- 2013 **Colloquium**, *Ontario Institute for Studies in Education (OISE), University of Toronto.*
- 2013 **Departmental Colloquium**, *McCausland Center for Brain Imaging, University of South Carolina.*
- 2013 **Departmental Colloquium**, *Psychology Department of The Ohio State University.*
- 2013 **Invited Symposium Presentation**, *The 96th Meeting of the Optical Society of America, Frontiers in Optics.*
- 2012 **GENIUS Olympiad Symposium on Learning and Memory**, *State University of New York (SUNY), Oswego.*
- 2011 **Monthly Users Meeting**, *Brown MRI Research Facility, Brown University.*
- 2010 **Sackler Science Weekly Colloquium Series**, *Sackler Institute for Developmental Psychobiology, Weill-Cornell Medical College.*
- 2008 **Sackler Science Weekly Colloquium Series**, *Sackler Institute for Developmental Psychobiology, Weill-Cornell Medical College.*
- 2008 **Perception, Cognition, and Development Lunch**, *Psychology Department, Cornell University.*

- 2018– **Member of Editorial Board.**
present *Infancy*
- 2018– **Member of Educational Committee.**
present Society for Functional Near-Infrared Spectroscopy
- 2018– **Member of Scientific Advisory Counsel.**
present R01 NIMH Brains Award: PI Judith Morgan
“Brain-Behavior Synchrony in Very Young Children and their Depressed Mothers”
- 2017– **Ad Hoc Editor, selected.**
present Proceedings of the National Academy of Sciences
eLife
- 2009– **Ad Hoc Reviewer, selected.**
present Annual Meeting for the Cognitive Science Society
Cerebral Cortex
Cognition
Cognitive Science
Developmental Psychobiology
Developmental Psychology
Developmental Science
European Journal of Neuroscience
Experimental Psychology
Frontiers in Systems Neuroscience
Journal of Experimental Psychology: Learning, Memory, and Cognition
Journal of Cognitive Neuroscience
Journal of Vision
Language, Cognition & Neuroscience
Medical Science Monitor
MIT Press: Philosophy and Cognitive Science
National Science and Engineering Counsel (NSERC–Canadian Government)
Nature Scientific Reports
Neuropsychologia
PloS One
Proceedings of the National Academy of Sciences
Philosophical Transactions of the Royal Society B: Biological Sciences
Quarterly Journal of Experimental Psychology
Society for Research In Child Development: Cognitive Processes Panel
Society for Research In Child Development: Learning and Memory Panel
Society for fNIRS
Taylor & Francis
Women in Science Early Career Grant
- 2013 **Participant**, *Responsible Conduct of Research Workshop*, University of Rochester, Day long workshop on research ethics.
- 2008 **Graduate Coordinator**, *Merck Fund Summer Institute on the Biology of Developmental Disabilities*, Cornell University.

Selected Media Attention

Print and Online Articles

- New York Times*, “Dial P for Privacy: The Phone Booth Is Back,” March 10th 2018
Princeton University Press Release, “Premature babies don’t use sensory-prediction brain process that may be key to development,” January 26th 2017
Princeton Alumni Weekly, “Life of the Mind: In Short,” October 7th 2015
Wall Street Journal, “Babies Make Predictions, Too,” August 12th 2015
Princeton Sun, “Princeton Psychologist Explores Expectations in Babies’ Brains,” August 12th 2015
Princeton University Press Release, “Infants Use Expectations to Shape Their Brains” July 20th 2015
University of Rochester Press Release, “Babies’ Expectations May Help Brain Development,” July 21st 2015
New York Times, “The Words of the Year,” December 19th 2010

New York Times, "When Speakerphone is Less Distracting," September 28th 2010

Reuters, "Annoyed by cellphones? Scientists explain why," May 20th 2010

appeared in *CNN*, *Fox News*, *MSNBC*, *USA Today*, *The Telegraph*, *The National (Canada)*, *The Examiner (UK)*, *ABC News*, *Canada.com*, *Washington Post (blog)*, *Discover Magazine (blog)*, *The Globe and Mail (Canada)* and others

Scientific American, "Cell Bound: Why It Is Hard to Ignore Public Mobile Phone Conversations," September 22nd 2010

TIME Magazine, "Why Hearing Half of a Cell-Phone Conversation Drives You Nuts," September 22nd 2010

Podcasts and Radio

British Broadcasting Corporation (BBC), "The Why Factor," August 14th 2017

Canadian Broadcasting Corporation Radio (CBC), "DNTO," January 15th 2011

National Public Radio (NPR), "Here and Now" October 13th 2010

Scientific American, *60-Second Science Daily Podcast*, "It's Not Just You: Overhearing Half a Phone Call IS Annoying," May 21st 2010

Conference Presentations

Xiao, N. G., & **Emberson L. L.** (under review). Top-down perception at 6 months of age: Evidence from motion perception. Poster at Annual Meeting of the *Vision Sciences Society*: Naples, Florida.

Robertson, C., Reuter, T., Zinszer, B. & **Emberson, L. L.** (2019). Decoding Infants' Pre-activation of Lexical Representations via fNIRS. Poster at *Society for Research in Child Development Biennial Meeting*: Baltimore, Maryland.

Reuter, T. & **Emberson, L. L.** (2019) What gets Predicted? Evaluating the Specificity of Infants' Verbal Predictions. Poster at *Society for Research in Child Development Biennial Meeting*: Baltimore, Maryland.

Xiao, N. G., Robertson, C. E., & **Emberson L. L.** (2019). Top-down sensory prediction in neonates: fNIRS evidence. Poster at *Society for Research in Child Development Biennial Meeting*: Baltimore, Maryland.

Xiao, N. G., Jaffe-Dax, S., Liu, S., Quinn, P. C., Lee, K., & **Emberson L. L.** (2019). Infants prefer to learn from own-over other-race adults: Evidence from computational modeling. Symposium Presentation at *Society for Research in Child Development Biennial Meeting*: Baltimore, Maryland.

Zhang, F. & **Emberson, L. L.** (2019). Investigating prediction error in auditory and visual domain of infants using pupillometry. Poster at *Society for Research in Child Development Biennial Meeting*: Baltimore, Maryland.

Wang, A., Jaffe-Dax, S. & **Emberson, L. L.** (2019). The neural mechanisms supporting habituation to audio-visual associations in infants: An fNIRS and looking time study. Poster at *Society for Research In Child Development*: Baltimore, Maryland.

Jaffe-Dax, S. Bejjanki, V. R. & **Emberson, L. L.** (2019). Infants' brain response to predictable stimuli is weaker but more synchronized. Poster at *Society for Research In Child Development*: Baltimore, Maryland.

Jaffe-Dax, S., Gayle, M., & **Emberson, L.L.** (2018). Incorporating neural reliability measures to isolate functional connectivity differences across populations. Poster presentation at *Society for Research in Near-Infrared Spectroscopy*: Toyko, Japan.

Jaffe-Dax, S., Treves, I.N., Bejjanki, V.R., & **Emberson, L.L.** (2018). Predictability modulates response amplitude and boosts background connectivity in infants and in adults. Poster presentation at *Society for Research in Near-Infrared Spectroscopy*: Toyko, Japan.

Jaffe-Dax, S., Bermanno, A.H., & **Emberson, L.L.** (2018). Automated Spatial Co-Registration Method from Simple Video. In *Society for NIRS Conference* (Tokyo, Japan). Poster presentation at *Society for Research in Near-Infrared Spectroscopy*: Toyko, Japan.

Xiao, N. G., Robertson, C., & **Emberson, L. L.** (2018). Top-down Sensory Prediction in Neonates: fNIRS Evidence. Oral presentation at *Society for Research in Near-Infrared Spectroscopy*: Toyko, Japan.

Emberson, L. L., Reuter, T., Robertson, C., Mazzei, C., Lew-Williams, & Zinszer, B. (2018). Decoding pre-activation of lexical representations during language comprehension in infancy. Oral presentation at *Society for Research in Near-Infrared Spectroscopy*: Toyko, Japan.

Xiao, N. G. & **Emberson L. L.** (2018). Cued emotion: Top-down influence of facial expression perception in infancy. Symposium Talk at *Development 2018: A Canadian Conference on Developmental Psychology*: St.Catharine's, Ontario, Canada.

- Jaffe-Dax, S. & **Emberson, L. L.** (2018) Predictive coding in infancy: Infants' brains respond more strongly to less predictable stimuli. Poster at *The Probabilistic Brain workshop*: Durham, UK.
- Reuter, T., Mazzei, C., Lew-Williams, C., & **Emberson, L. L.** (2018). Prediction and learning: A chicken-or-egg problem in language development. Oral presentation at the *University of Delaware Linguistics and Cognitive Science Student Conference*: Newark, Delaware.
- Zhang, F., Jaffe-Dax, S., Wilson, R. C., & **Emberson, L. L.** (2018). Violation of expectation in infants and adults: A pupillometry study. Poster presentation at the *International Congress for Infant Studies*: Philadelphia, PA.
- Zhang, F. & **Emberson, L. L.** (2018). Prediction Error in Auditory and Visual Domain of 6-month-old: A Pupillometry Study. Poster presentation at the *International Congress for Infant Studies*: Philadelphia, PA.
- Mazzei, C., Arnon, I., & **Emberson, L. L.** (2018). Where the Wild 2- to 3-year-olds Are: Methods for Assessing Developmental Trajectories of Statistical Learning Across Modalities. Poster presentation at the *International Congress for Infant Studies*: Philadelphia, PA.
- Jaffe-Dax, S. & **Emberson, L. L.** (2018). Infants' brains respond more strongly to less predictable stimuli: The case of sequence learning. Poster presentation at the *International Congress for Infant Studies*: Philadelphia, PA.
- Jaffe-Dax, S. & **Emberson, L. L.** (2018). Connectivity development from infancy to adulthood—a reliable functional connectivity comparison. Oral presentation in symposium “Extracting Neural Representations from EEG and fNIRS Signals for Studies of Development and Learning” at the *International Congress for Infant Studies*: Philadelphia, PA.
- Reuter, T., Mazzei, C., Lew-Williams, C., & **Emberson, L. L.** (2018). Prediction and learning: A chicken-or-egg problem in language development. Poster presentation at the *International Congress for Infant Studies*: Philadelphia, PA.
- Xiao, N. G. & **Emberson, L. L.** (2018). Cued emotion: Top-down influence of facial expression perception in infancy. Poster presentation at the *International Congress for Infant Studies*: Philadelphia, PA.
- Ghersin, H., Xiao, N. G., Dombrowski, N. B., Boldin, A. M. & **Emberson, L. L.** (2018). Top-down information boosts infants' face perception. Poster presentation at the *International Congress for Infant Studies*: Philadelphia, PA.
- Jaffe-Dax S., Boldin A.M., Daw N.D. & **Emberson, L. L.** (2017). Pre-term infants exhibit impaired prediction and learning in Audio-Visual association paradigm. Poster presentation at the *39th Annual Conference of the Cognitive Science Society*, London, England.
- Emberson, L. L.** & Karuza, E. A. (2017). Being Predictive (as Opposed to Predicted) Incurs a Processing Cost: Why? Poster presentation at *International Conference on Interdisciplinary Advances in Statistical Learning*, Bilbao, Spain.
- Emberson, L. L.** (2017) Statistical Learning Across Multiple Representational Dimensions: Learning Biases Shift with Category Familiarity. Poster presentation at *International Conference on Interdisciplinary Advances in Statistical Learning*, Bilbao, Spain.
- Emberson, L. L.**, Boldin, A., Riccio, J., Guillet, R. & Aslin, R. N. (2017). Deficits in the Use of Statistical Learning for Prediction in Infants Born Prematurely. Oral presentation at *International Conference on Interdisciplinary Advances in Statistical Learning*, Bilbao, Spain.
- Zhang, F., Jaffe-Dax, S., Wilson, R. C. & **Emberson, L. L.** (2017). Prediction and statistical learning in infants and adults: A pupillometry study. *International Conference on Interdisciplinary Advances in Statistical Learning*, Bilbao, Spain.
- Zhang, F., & **Emberson, L. L.** (2017). Examining the online mechanisms of visual statistical learning using pupillometry. *International Conference on Interdisciplinary Advances in Statistical Learning*, Bilbao, Spain.
- Reuter, T., **Emberson, L. L.**, Romberg, A., & Lew-Williams, C. (2017). Individual Differences in Nonverbal Prediction and Vocabulary in Infancy. Poster Presentation at the *Society for Research in Child Development*: Austin, Texas.
- Zhang, Y., Wilson, R. & **Emberson, L. L.** (2017). Prediction in Young Infants: A Pupillometry Study. Poster Presentation at the *Society for Research in Child Development*: Austin, Texas.
- Mazzei, C., Loncar, N. & **Emberson, L. L.** (2017). The Blowfish Effect: Do Children use Exemplar Typicality to Determine the Intended Taxonomic Level? Poster Presentation at the *Society for Research in Child Development*: Austin, Texas.
- Emberson, L. L.**, Riccio, J. E., Richards, J. E., Guillet, R. & Aslin, R. N. (2016). Deficits in Top-Down, Sensory Prediction in Infants At-Risk Due to Premature Birth. Oral Presentation at the *Society for functional Near Infrared Spectroscopy*: Paris, France.
- Emberson, L. L.** Zinszer, B. D., Raizaza, R. D. S., & Aslin, R. N. (2016). Decoding the Infant Mind: Multichannel Pattern Analysis (MCPA) using fNIRS. Poster Presentation at the *Society for functional Near Infrared Spectroscopy*: Paris, France.
- Emberson, L. L.**, Crosswhite, S. L., Goodwin, J. R., Berger, A. J., & Aslin, R. N. (2016). Isolating the Effects of

- Surface Vasculature in Infant Neuroimaging Using Short-Distance Optical Channels: A Combination of Local and Global Effects. Poster Presentation at the *Society for functional Near Infrared Spectroscopy*: Paris, France.
- Zhang, Y., Aslin, R. N. & **Emberson, L. L.** (2016). Investigating Auditory Prediction in Young Infants using fNIRS. Poster Presentation at the *Society for functional Near Infrared Spectroscopy*: Paris, France.
- Boldin, A., & **Emberson, L. L.** (2016). Role of Frontal Cortex in Infant Top-Down Sensory Prediction. Poster Presentation at the *Society for functional Near Infrared Spectroscopy*: Paris, France.
- Zinszer, B., Bayet, L., **Emberson, L. L.**, & Aslin, R. N. (2016). Decoding Semantic Representations from fNIRS Signals. Poster Presentation at the *Society for functional Near Infrared Spectroscopy*: Paris, France.
- Emberson, L. L.**, & Kersey, A. (2016). Tracing Trajectories of Audio-visual Learning in the Infant Brain. Poster Presentation at the *FLUX Congress*: St. Louis, Missouri.
- Emberson, L. L.**, Riccio, J. E., Richards, J. E., Guillet, R. & Aslin, R. N. (2016). Comparing How Statistical Learning Supports Perceptual Expectations in Infants at Low and High Risk for Developmental Delays. Oral Presentation at the *International Congress for Infant Studies*: New Orleans: LA.
- Emberson, L. L.**, Richards, J. E., & Aslin, R. N. (2016). Top-Down Modulation in the Occipital Cortex As a Result of Audio-Visual Statistical Information of 6-month-old Human Infants. Poster Presentation at the *International Society for Developmental Neuroscience*: Juan-des-Pins, France
- Emberson, L. L.**, Riccio, J. E., Richards, J. E., Guillet, R., & Aslin, R. N. (2016). Comparing How Statistical Learning Supports Perceptual Expectations in Infants at Low and High Risk for Developmental Delays. Oral Presentation at the *International Conferences of Infant Studies*: New Orleans, LA.
- Zinszer, B. D., **Emberson, L. L.**, Raizada, R. D. S., & Aslin, R. N. (2016). Decoding the Infant Mind: Multichannel Pattern Analysis (MCPA) using fNIRS. Poster Presentation at the 23rd Annual Meeting of the *Cognitive Neuroscience Society*: New York, NY.
- Emberson, L. L.**, Misyak, J. B., Schwade, J. A., Christiansen, M. C. & Goldstein, M. H. (2015). How Abstract is Statistical Learning? Comparing Learning Across Visual and Auditory Perceptual Modalities in Infancy. Oral Presentation at the *Interdisciplinary Advanced in Statistical Learning*: San Sebastian, Spain.
- Emberson, L. L.**, Richards, J. E. & Aslin, R. N (2015). Revealing Neural Changes in Infant Occipital Cortex After Cross-Modal Statistical Learning: An fNIRS Study of 6-month-olds. Poster Presentation at the *Interdisciplinary Advanced in Statistical Learning*: San Sebastian, Spain.
- Emberson, L. L.** & Aslin, R. N (2015). How Does Statistical Information Change Infant Perceptual Systems? Symposium Presentation at the *Biennial Meeting of the Society for Research in Child Development*: Philadelphia, PA.
- Emberson, L. L.**, Richards, J. E., & Aslin, R. N (2014). The Infant Occipital Cortex Responds to a Predictive Cross-Modal Stimulus: An fNIRS Study of 6-month-olds. Oral Presentation at the *Biennial Meeting of the fNIRS Society*: Montreal, Canada.
- Emberson, L. L.**, Palmeri, H., Cannon, G., Richards, J. E., & Aslin, R. N. (2014). Repetition Suppression Differences Across Perceptual Systems in 6-month-olds: Evidence of Earlier Development of Auditory RS using fNIRS. Poster presentation at the *Repetition Suppression Summer School*: Jena, Germany.
- Emberson, L. L.** & Aslin, R. N (2013). Occipital Cortex Responses to an Unexpected Absence of Visual Information: Evidence for Statistically-Mediated Changes in Sensory Cortex in 6-Month-Old Humans. Talk at the *International Society for Developmental Psychobiology*: San Diego, CA.
- Emberson, L. L.**, Reeder, P. A., Aslin, R. N., & Bavelier, D. (2013). What's Feedback Got To Do With It? Examining Learning Rate and Generalization in Cross-scene Statistical Learning With and Without Feedback. Poster presentation at the *Vision Sciences Society Annual Meeting*: Naples, Florida.
- Emberson, L. L.**, Palmeri, H., Cannon, G. & Aslin, R. N. (2013). Investigating Sensory Cortex Selectivity in 6-month-olds using FNIRS and Repetition Suppression. Paper presentation at the *Biennial Meeting of the Society for Research in Child Development*: Seattle, WA
- Emberson, L. L.**, Palmeri, H., Cannon, G. & Aslin, R. N. (2013). Differences in Repetition Suppression across Sensory Systems in 6-month-olds: Using NIRS to Compare Infant and Adult Neural Function. Poster at the *20th Annual Meeting of the Cognitive Neuroscience Society*: San Francisco, CA
- Emberson, L. L.**, Karuza, E. A., Turk-Browne, N. B. & Aslin, R. N. (2013). What's Next? Implicit Anticipation during Statistical Learning Interferes with Task Performance. Poster at the Annual Meeting of the *Lake Ontario Visionary Establishment*: Niagara Falls, Ontario, Canada.
- Emberson, L. L.**, Palmeri, H. & Aslin, R. N. (2012). Building from Basics: fNIRS recordings from 6-month olds investi-

- gate sensory cortex selectivity and response suppression. Oral presentation at the *International fNIRS Conference*, London, England.
- Emberson, L. L.**, Aslin, R. N., Goodwin, J., Palmeri, H. & Berger, A. J. (2012). Retinotopic mapping in infant visual cortex using near-infrared spectroscopy (NIRS). Invited talk at the *96th Meeting of the Optical Society of America, Frontiers in Optics*, Rochester, NY.
- Emberson, L. L.**, Misyak, J. B., Schwade, J.A., Christiansen, M.H., & Goldstein, M. H. (2012). How Amodal is Statistical Learning? Comparing Learning across Auditory and Visual Modalities in Infancy. Poster at the *XVII Biennial Conference on Infant Studies*, Minneapolis, MN.
- Ward, L. M., Kirschner, A. **Emberson, L.** & Kitajo, K. (2011). Endogenous Neural Noise and Reaction Time. Poster Presentation at *27th Meeting of the Interactional Society for Psychophysics (Fechner Day)*, Herzliya, Israel.
- Emberson, L. L.**, Kahn, J., Haas, S. & Amso, D. (2011) Learning Systems Support Object Perception Across Variable Environmental Exposure: Evidence from a Combined fMRI/Eye Tracking Methods Approach. Slides Presentation at *28th Annual Meeting of the Cognitive Neuroscience Society*, San Francisco, CA.
- Misyak, J. B., **Emberson, L. L.**, Schwade, J.A., Christiansen, M.H., & Goldstein, M. H. (2011). Comparing Infants Learning of Statistical Regularities in Auditory and Visual Sequences with Complex, Familiar Stimuli. Poster presentation at the *International Association for the Study of Child Language*, Montreal, QC. **[Winner of Best Student Poster]**
- Emberson, L. L.**, & Rubinstein, D. (2010). Learning from Environmental Regularities is Grounded in Specific Objects not Abstract Categories. Paper at the *Proceedings for the 32nd Annual Conference of the Cognitive Science Society*, Portland, OR.
- Emberson, L. L.** & Amso, D. (2010). Perceptual Learning of Complex Objects: Mechanisms of integration across multiple views of a novel object in cluttered scenes. Poster presentation at the *27th Annual Meeting of Cognitive Neuroscience Science Society*, Montreal, QC, Canada.
- Emberson, L. L.**, & Zevin, J. D. (2009). Beyond the statistics: Questioning the arbitrariness of the "words" in statistical learning paradigms. Member Poster at *31st Annual Meeting of the Cognitive Science Society*, Amsterdam, the Netherlands.
- Emberson, L. L.**, Liu, R., & Zevin, J. D. (2009). Statistics All the Way Down: How is Statistical Learning Accomplished Using Novel, Complex Sound Categories? Poster at *31st Annual Meeting of the Cognitive Science Society*, Amsterdam, the Netherlands.
- Emberson, L. L.**, Kitajo, K., MacLean, S. E. & Ward, L. M. (2009). Intermediate Levels of Uncoordinated Gamma-Band Activity Facilitate Behavioral Responses To Simple Visual Stimuli. Poster presentation at the *26th Annual Meeting of the Cognitive Neuroscience Society*, San Francisco, CA.
- Farmer, T.A. & **Emberson, L.L.** (2009). Paying Attention to Attention in Language Learning and Development. Symposium at *Annual Meeting of the Society of Research Child Development*, Denver, Colorado.
- Misyak, J. M., **Emberson, L.L.**, Schwade, J.A., Christiansen, M.H., & Goldstein, M. H. (2009). Face-to-Face, Word-for-Word: Comparing Statistical Learning for Familiar Stimuli Across Modalities. Poster at *Annual Meeting of the Society of Research Child Development*, Denver, Colorado.
- Emberson, L. L.**, Lupyan, G., Webb, A., Goldstein, M. H., & Spivey, M. J. (2008). Why Cell Phones are Irritating: Different types of speech yield different attentional demands. Poster presentation at the *49th Annual Meeting of the Psychonomics Society*, Chicago, IL.
- Emberson, L. L.**, Weiss, R. J., Barbosa, A. V., Vatikiotis-Bateson, E., & Spivey, M. J. (2008). Crossed hands curve saccades: Multisensory dynamics in saccade trajectories. Poster at *9th International Multisensory Research Forum*, Hamburg, Germany.
- Emberson, L. L.**, Conway, C. M., & Christiansen, M. H. (2008). Timing is everything: Modality modulates effects of attention in implicit statistical learning. Poster at *9th International Multisensory Research Forum*, Hamburg, Germany.
- Emberson, L. L.**, Weiss, R. J., Barbosa, A. V., Vatikiotis-Bateson, E., & Spivey, M. J. (2008). Crossed hands curve saccades: Multisensory dynamics in saccade trajectories. Paper at *30th Annual Meeting of the Cognitive Science Society*, Washington, DC.
- Emberson, L. L.**, Misyak, J. M., Schwade, J. A., Christiansen, M. H., & Goldstein, M. H. (2008). Face-to-face: Visual Statistical Learning with Complex Natural Stimuli. Poster at *XVIth Biennial International Conference on Infant Studies*, Vancouver, BC.

- Emberson, L. L.**, Conway, C. M., & Christiansen, M. H. (2007). Timing is everything: The effects of attention and modality in statistical learning. Poster at *48th Annual Meeting of the Psychonomics Society*, Long Beach, CA.
- Emberson, L. L.**, Kitajo, K. & Ward, L. M. (2007). Somewhat noisy brains see better: Prestimulus dynamics and perceptual performance. Poster at the *Annual Meeting of the Cognitive Neuroscience Society*, New York, NY.
- Emberson, L. L.**, Kitajo, L. & Ward, L. M. (2007) Endogenous neural noise and stochastic resonance. Paper presentation at the *IEEE Conference of Noise and Fluctuations in Biological, Biophysical, & Biomedical Systems*, Florence, IT.