Cory D. Bonn

✉ cory dot bonn at psych.ubc.ca
↪ https://corydbonn.github.io
◉ corydbonn
🐦 @corydbonn

Summary of Research and Teaching Interests

As a researcher, I am broadly interested in how humans create and update mental models of events and objects in the world with statistical information. Specifically, I am studying the intuitive number sense and intuitive magnitude and ratio processing: how do we integrate prior knowledge of how quantities are generated by the natural world with the information generated by our sensory systems?

As an educator, I am primarily interested in providing students with the opportunity to actively engage with theories and hypotheses. In my classes, I place a special emphasis on developing creative aspects of scientific thinking through assignments that require connecting candidate explanations of phenomena to concrete behavioral predictions that may be tested with students' own experimental designs.

Education

2010–2016 **M.A., Ph.D. Brain and Cognitive Sciences**, *College of Arts and Sciences, University of Rochester*, Rochester, NY.
On Theories of Abstract, Quantitative Representation. Committee: Richard N. Aslin (advisor), Jessica F. Cantlon (advisor), Steven T. Piantadosi, Véronique Izard, Elizabeth W. Marvin (chair)

2008–2010 **M.A. Music Theory, concentration in Cognition**, *Eastman School of Music, University of Rochester*, Rochester, NY.

2001–2006 **B.M. Applied Music, concentration in Piano Performance with Take 5 in Linguistics and Psycholinguistics**, *Eastman School of Music, University of Rochester*, Rochester, NY.
High Distinction

Appointments/Affiliations

May 2019–present **DSI Postdoctoral Research Fellow**, *Centre for Cognitive Development*, Data Science Institute & Department of Psychology, University of British Columbia.
Supervised by Darko Odic (Psychology), Cristina Conati (Computer Science), & Lang Wu (Statistics).

January 2018–April 2019 **Postdoctoral Research and Teaching Fellow**, *Centre for Cognitive Development*, Department of Psychology, University of British Columbia.
Supervised by Darko Odic.

2016–2018 **Fyssen Postdoctoral Fellow**, *UMR 8242, Laboratoire Psychologie de la Perception*, Centre National de la Recherche Scientifique, Université Paris Descartes.
Supervised by Véronique Izard and Lola de Hevia.

2015 **NSF-GROW and STEM-Chateaubriand Fellow**, *UMR 8242, Laboratoire Psychologie de la Perception*, Centre National de la Recherche Scientifique, Université Paris Descartes.
Supervised by Véronique Izard.

2010-2015 **Graduate Student Researcher**, *University of Rochester, Department of Brain and Cognitive Sciences*.
Supervised by Richard N. Aslin and Jessica F. Cantlon.

2009 **Research Associate**, *Institute for Music and Brain Science*.
Supervised by Mark J. Tramo.

2008-2010 **Graduate Student and Teaching Assistant**, *Eastman School of Music, University of Rochester, Department of Music Theory*.
Supervised by Elizabeth W. Marvin.

2004 **Undegraduate Teaching Assistant**, *University of Rochester, Department of Linguistics*.
Supervised by Christine Gunlogson.

Funding, Honors, & Awards

- **UBC Data Science Institute Postdoctoral Matching Fund**, 2019-2020.
- **Fyssen Foundation Postdoctoral Fellowship**, 2016-2017.
- **National Science Foundation, Graduate Research Opportunities Worldwide Fellowship**, 2015.
- **Embassy of France in Washington, D.C., STEM-Chateaubriand Fellowship**, 2015.
- **National Science Foundation, Graduate Research Fellowship**, 2010–2014.
- **Take 5 Scholarship**, University of Rochester, 2004–2006.
- **German Book Award**, Department of Modern Languages and Cultures, University of Rochester, 2004.
- **Dean's List**, University of Rochester, 2001–2006.
- **Lois Rogers Scholarship**, Eastman School of Music, University of Rochester, 2001-2005.

Publications

Papers

2019 **Bonn, C. D.**, Netskou, M.-E., Streri, A., Hevia, M. D. d., The association of brightness with number/duration in human newborns. *PLOS ONE*, *14*(10), e0223192. doi:10.1371/journal.pone.0223192

2017 **Bonn, C. D.**, Cantlon, J. F., Spontaneous, modality-general abstraction of a ratio scale. *Cognition*, *169*, 36–45. doi:10.1016/j.cognition.2017.07.012

de Hevia, M. D., Veggiotti, L., Streri, A., **Bonn, C. D.,** At birth, humans associate "few" with "left" and "many" with "right". *Current Biology*, *27*(24), 3879–3884.e2. doi:10.1016/j.cub.2017.11.024

Mulak, K. E., **Bonn, C. D.**, Chládková, K., Aslin, R. N., Escudero, P., Indexical and linguistic processing by 12-month-olds: Discrimination of speaker, accent and vowel differences. *PLOS ONE*, *12*(5), e0176762. doi:10.1371/journal.pone.0176762

2015 Stasenko, A., **Bonn, C.**, Teghipco, A., Garcea, F. E., Sweet, C., Dombovy, M., McDonough, J., Mahon, B. Z., A causal test of the motor theory of speech perception: A case of impaired speech production and spared speech perception. *Cognitive Neuropsychology*, *32*(2), 38–57. doi:10.1080/02643294.2015.1035702

2012 **Bonn, C. D.**, Cantlon, J. F., The origins and structure of quantitative concepts. *Cognitive neuropsychology*, *29*(0), 149–173. doi:10.1080/02643294.2012.707122

Submitted and in preparation

in revision Siu, J., **Bonn, C. D.**, Marvin, E. W., *Contributions of native language, spectral envelope, and absolute pitch possession to the perception of octave-ambiguous tritones in tone-language speakers.*

in prep **Bonn, C. D.**, Aslin, R. N., *Probability matching in human infants: A demonstration using a novel, forced-choice, gaze-contingent paradigm.*

Bonn, C. D., Izard, V., *Dot-size variance reduces biases in numerosity discrimination and estimation.*

Bonn, C. D., Odic, D., *Adaptation to low-level features reveals mechanisms of visual number encoding.*

Conference Proceedings Papers

2015 Escudero, P., **Bonn, C. D.**, Aslin, R. N., Mulak, K., Indexical and linguistic processing in infancy: Discrimination of speaker, accent and vowel differences. In *Proceedings of the international conference on phonetic sciences*. Glasgow, Scotland.

Presentations

2019 **Bonn, C. D.**, Odic, D., *Adaptation to non-numeric features reveals mechanisms of visual number encoding*. Oral presentation at the meeting of the Vision Sciences Society., St. Pete's Beach, FL.

2018 **Bonn, C. D.**, Cantlon, J. F., *Spontaneous abstraction of ratios and ranks across magnitude dimensions*. Oral resentation at the meeting of the Mathematical Cognition and Learning Society., Oxford, UK.

2017 **Bonn, C. D.**, Izard, V., *Dot-size variance reduces biases in numerosity discrimination and estimation*. Poster presented at the Concepts, Actions and Objects Workshop at CIMeC, University of Trento, Rovereto, IT.

2016 **Bonn, C. D.**, Izard, V., *Sources of uncertainty in the approximate number system*. Poster presented at the Workshop on Domain-General and Domain-Specific Foundations of Numerical and Arithmetic Processing at the Universität Tübingen, Tübingen, Germany.

2015 Kriengwatana, B. P., Junge, C., hládková, K., **Bonn, C. D.**, Aslin, R. N., Escudero, P., *Keep on looking: No robust anticipatory looking paradigms yet in infant speech sound learning*. Poster presented at the Workshop on Infant Language Development, Stockholm, Sweden.

2014 **Bonn, C. D.**, Aslin, R. N., *Forced-choice, gaze-contingent methodologies for use with human infants: Advantages and disadvantages*. Presented at International Congress for the Study of Child Language (IASCL), Amsterdam, NE.

2012 **Bonn, C. D.**, Aslin, R. N., *Drag-n-drop: A forced-choice paradigm for infants*. Presented at IEEE Conference on Development and Learning and Epigenetic Robotics, San Diego, CA.

Invited Talks

2016 **Département d'Etudes Cognitives, Experimental Philosophy Seminar**, *Ecole Normale Supérieur*, November 22, 2016.

2015 **Centre Universitaire des Saints-Pères, SPOT Talks**, *Université Paris Descartes*, December 1, 2015.

2014 **Department of Brain and Cognitive Sciences, Guest Talks**, *Universiteit van Amsterdam*, July, 2014.

Teaching

Spring 2019 **Instructor, PSYC 208, Music Perception**, *University of British Columbia*.
Mixture of lectures and participation in in-class replication experiments at sophomore undergraduate level.

Fall 2018 **Instructor, PSYC 412, Cognitive Development**, *University of British Columbia*.
Mixture of lectures and seminars on cognitive development at senior undergraduate level.

Spring 2018 **Instructor, R Workshop for the Centre for Cognitive Development**, *University of British Columbia*.
Delivered a tutorial on R basics, including data visualization with ggplot2 and syntax for common statistical tests.

Spring 2012, 2014 **R Lab Instructor, CSP 519: Data Analysis II, General Linear Model Approaches**, *University of Rochester*.
Conducted graduate-level statistics labs for the Department of Clinical and Social Sciences in Psychology.

Spring 2013 **Teaching assistant, BCS 172: Development of Mind and Brain**, *University of Rochester*.
Guest lectured, conducted recitations and reviews, and graded for large introductory development class for the Brain and Cognitive Science Department.

Spring 2012 **Teaching assistant, BCS 183: Animal Minds**, *University of Rochester*.
Guest lectured, helped design assessments, and graded for introductory animal cognition course course.

Spring 2011 **Teaching assistant, BCS 260: Music and the Mind**, *University of Rochester*.
Guest lectured, designed assessments, provided guidance with paper writing, and graded for introductory music cognition course.

Spring 2009	**Teaching assistant, MT 101/102: Tonal Analysis**, *Eastman School of Music*. Conducted weekly, interactive recitations, and graded assignments and exams for the Department of Music Theory.
Spring 2008	**Teaching assistant, MT 161/162: Aural Skills**, *Eastman School of Music*. Conducted all classes, exams, and graded for the Department of Music Theory.
Fall 2007 - Spring 2008	**Private piano instructor**, *Indian Hill Music, Littleton, MA*. Taught private lessons from ages 6 up.
Spring 2007	**Private piano instructor**, *Salem State College, Salem, MA*. Taught beginning piano to music majors.
Fall 2006 - Spring 2008	**Class and private piano instructor**, *Yamaha Music School, Lexington, MA*. Taught group courses for ages 4-9 and adult in the Yamaha Music Education System as well as private piano lessons.
Spring 2006	**Teaching assistant, LING 101: Aural Skills**, *Eastman School of Music*. Conducted all classes, exams, and graded for the Department of Music Theory.

Service and Broader Community Participation

Mentoring

2018-present	Supervisor of 4 research assistants and 1 summer intern in the Centre for Cognitive Development.
Fall 2017 to present	Co-supervisor of 1st-year Master's thesis at Université Paris Descartes.
Spring 2012, Fall 2014	Supervised two undergraduate research assistants in the Rochester Baby Lab.

Journal Article Refereeing

Publons Summary	88th percentile of all reviewers for number of reviews in current year

- *British Journal of Developmental Psychology*
- *PLOS ONE*
- *Journal of Vision*
- *Psychonomic Bulletin & Review*
- *Developmental Science*
- *Journal of Experimental Child Psychology*
- *Journal of Experimental Psychology: General*
- *Journal of Experimental Psychology: Human Perception and Performance*
- *Child Development*
- *Frontiers in Psychology*
- *Methods in Psychology*

Society Memberships

- Vision Sciences Society (active)
- Mathematical Cognition and Learning Society (active)
- Society for Music Perception and Cognition (inactive)
- Society for Language Development (inactive)

Technical Skills

Programming Languages

- Python versions 2 and 3. Used extensively for implementing in-lab experimental designs with the Psychopy package.

- R programming language. Particular expertise in data visualization with ggplot2 and multilevel modeling with lme4 and RStan.
- Javascript/HTML/CSS. Experience designing web pages, implementing experiments in web browsers and Desktop applications with Electron using node.js.

Modeling Techniques

- Bayesian data analysis and cognitive model development with the Stan programming language
- Multilevel (mixed-effects) modeling
- Survival analysis