

Justin N. Wood

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Laboratory Website

<http://buildingamind.com/>

Education

Harvard University, Cambridge, MA

Ph.D., Psychology, 2008

M.A., Psychology, 2005

University of Virginia, Charlottesville, VA

B.A., Psychology, 2002

Academic Employment

2015-present	Associate Professor (without tenure), University of Southern California, Psychology Department
2008-2015	Assistant Professor, University of Southern California, Psychology Department
2002-2003	Research Assistant, Harvard University, Department of Psychology (Elizabeth Spelke & Susan Carey)

Grants & Awards

2017-2023	James S. McDonnell Foundation, Understanding Human Cognition Scholar Award, PI, Using Automated Controlled Rearing to Explore the Origins of the Mind, \$600,000
2014-2019	NSF, PI, DS, CAREER: Characterizing Object Recognition Machinery in a Newborn Visual System, \$559,805
2009-2010	USC, PI, Advancing Scholarship in the Humanities & Social Sciences Research Award, The Origins of Object Knowledge, \$25,000
2010	General Education Excellence in Teaching Award, University of Southern California
2008	Division 3 New Investigator Award, American Psychological Association
2005-2008	NIH, NIMH, NRSA (pre-doctoral) Award, Cognitive Processing in Human Infants and Primates
2006, 2007	Harvard University, Restricted Funds Research Award (awarded 2 times)
2006	Concepts, Actions, and Objects Conference, Travel Award
2004-2006	Harvard University, Travel Grant (awarded 3 times)
2003-2005	Harvard University, Graduate School of Arts and Sciences Award (awarded three times)
2003-2005	Harvard University, Graduate School of Arts and Sciences Summer Research Award (awarded three times)

2005	Harvard University, Stimson Research Award
2005	Harvard University, Department of Mind, Brain, and Behavior Research Award
2004	Harvard University, Derek Bok Center Certificate of Distinction for Excellence in Teaching

Publications (peer-reviewed)

Cai, Y., Urgolites, Z., **Wood, J. N.**, Chen, C., Li, S., Chen, A., & Xue, G. (2018). Distinct neural substrates for visual short-term memory of actions. *Human Brain Mapping*. doi.org/10.1002/hbm.24236

Wood, J. N. & Wood, S. M. W. (2018). The development of invariant object recognition requires visual experience with temporally smooth objects. *Cognitive Science*, 1-16. doi: 10.1111/cogs.12595

Wood, J. N. (2017). Spontaneous preference for slowly moving objects in visually naïve animals. *Open Mind*, 1(2), 111-122. doi: 10.1162/OPMI_a_00012

Wood, J. N., & Wood, S. M. W. (2017). Measuring the speed of newborn object recognition in controlled visual worlds. *Developmental Science*. doi: 10.1111/desc.12470

Wood, J. N. (2016). A smoothness constraint on the development of object recognition. *Cognition*, 153, 140-145.

Wood, J. N. & Wood, S. M. W. (2016). The development of newborn object recognition in fast and slow visual worlds. *Proceedings of the Royal Society: Biological Sciences*, 283: 20160166. <http://dx.doi.org/10.1098/rspb.2016.0166>

Wood, J. N., Prasad, A., Goldman, J. G. & Wood, S. M. W. (2016). Enhanced learning of natural temporal sequences in newborn chicks. *Animal Cognition*, 19(4), 835-845. doi:10.1007/s10071-016-0982-5

Wood, S. M. W., & **Wood, J. N.** (2015). Newly hatched chicks recognize faces at the onset of vision. *Journal of Experimental Psychology: Animal Learning & Cognition*, 41(2), 206-215.

Wood, S. M. W., & **Wood, J. N.** (2015). A chicken model for studying the emergence of invariant object recognition. *Frontiers in Neural Circuits*, 9(7), 1-12.

Goldman, J. G., & **Wood, J. N.** (2015). An automated controlled-rearing method for studying the origins of movement recognition. *Animal Cognition*, 18(3), 723-731. doi: 10.1007/s10071-015-0839-3

Wood, J. N. (2015). Characterizing the information content of a newly hatched chick's first visual object representation. *Developmental Science*, 18(2), 194-205.

Wood, J. N. (2014). Newly hatched chicks solve the visual binding problem. *Psychological Science*, 25, 1475-1481.

Wood, J. N. (2013). Newborn chickens generate invariant object representations at the onset of visual object experience. *Proceedings of the National Academy of Sciences*, 110(34), 14000-14005.

Urgolites, Z. J., & **Wood, J. N.** (2013). Binding actions and scenes in visual long-term memory. *Psychonomic Bulletin & Review*. doi: 10.3758/s13423-013-0440-1.

Urgolites, Z. J., & **Wood, J. N.** (2013). Visual long-term memory stores high fidelity representations of observed actions. *Psychological Science*, 24(4), 403-411.

Endress, A., & **Wood, J. N.** (2011). From movements to actions: Two mechanisms for learning action sequences. *Cognitive Psychology*, 63, 141-171. (No senior author)

Hyde, D., & **Wood, J. N.** (2011). Spatial attention determines the nature of non-verbal numerical cognition. *Journal of Cognitive Neuroscience*, 23(9), 2336-2351.

Wood, J. N. (2011). A core knowledge architecture of visual working memory. *Journal of Experimental Psychology: Human Perception and Performance*, 37(2), 357-381.

Wood, J. N. (2011). When do spatial and visual working memory interact? *Attention, Perception, & Psychophysics*, 73, 420-439.

Wood, J. N., & Hauser, M. D. (2011). Replication of ‘The perception of rational, goal-directed action in nonhuman primates’. *Science*. doi: 10.1126/science.1202596 (Addendum).

Hauser, M. D., & **Wood, J. N.** (2011). Replication of ‘Rhesus monkeys correctly read the goal-relevant gestures of a human agent’. *Proceedings of the Royal Society: Biological Sciences*. DOI: 10.1098/rspb.2010.1441. (Addendum).

Wood, J. N. (2010). Visual working memory retains movement information within an allocentric reference frame. *Visual Cognition*, 18(10), 1464-1485.

Hauser, M. D., & **Wood, J. N.** (2010). Evolving the capacity to understand actions, intentions and goals. *Annual Review of Psychology* (61), 303-324.

Wood, J. N. (2009). Distinct visual working memory systems for view-dependent and view-invariant representation. *PLoS ONE*, 4(8): e6601. doi: 10.1371/journal.pone.0006601.

Wood, J. N., Kouider, S., & Carey, S. (2009). Acquisition of singular-plural morphology. *Developmental Psychology*, 45(1), 202-206.

Wood, J. N., & Hauser, M. D. (2008). Action comprehension in nonhuman primates: Motor simulation or inferential reasoning? *Trends in Cognitive Sciences*, *12*(12), 461-465.

Wood, J. N. (2008). Visual memory for agents and their actions. *Cognition*, *108*, 522-532.

Barner, D., **Wood, J. N.**, Hauser, M. D., & Carey, S. (2008). Evidence for a non-linguistic distinction between singular and plural sets in rhesus monkeys. *Cognition*, *107*, 603-622.

Wood, J. N., Glynn, D. D. & Hauser, M. D. (2008). Rhesus monkeys' understanding of actions and goals. *Social Neuroscience*, *3*(1), 60-68.

Wood, J. N., Hauser, M. D., Glynn, D. D., & Barner, D. (2008). Free-ranging rhesus monkeys spontaneously individuate and enumerate small numbers of non-solid portions. *Cognition*, *106*, 207-221.

Wood, J. N. (2007). Visual working memory for observed actions. *Journal of Experimental Psychology: General*, *136*(4), 639-652. (Paper received Division 3 Young Investigator Award From APA)

Wood, J. N., Glynn, D. D., Philips, B., & Hauser, M. D. (2007). The perception of rational, goal-directed action in non-human primates. *Science*, *317*(5843), 1402-1405.

Wood, J. N., Glynn, D. D., & Hauser, M. D. (2007). The uniquely human capacity to throw evolved from a non-throwing primate: An evolutionary dissociation between action and perception. *Biology Letters*, *3*(4), 360-364.

Hauser, M. D., Glynn, D. D., & **Wood, J. N.** (2007). Rhesus monkeys correctly read the goal-relevant gestures of a human agent. *Proceedings of the Royal Society: Biological Sciences*. *274*(1620), 1913-1918.

Stevens, J., **Wood, J. N.**, & Hauser, M. D. (2007). When quantity trumps number: discrimination experiments in cotton-top tamarins (*Saguinas oedipus*) and common marmosets (*Callithrix jacchus*). *Animal Cognition*, *10*, 429-437.

Barner, D., Thalwitz, D., **Wood, J. N.**, Yang, S., & Carey, S. (2007). On the relation between the acquisition of singular-plural morpho-syntax and the conceptual distinction between one and more than one. *Developmental Science*, *10*(7), 365-373.

Kouider, S., Halberda, J., **Wood, J. N.**, & Carey, S. (2006). Acquisition of English number marking: The singular-plural distinction. *Language Learning & Development*, *2*(1), 1-25.

Wood, J. N., & Spelke, E. S. (2005). Chronometric studies of numerical cognition in five-month-old infants. *Cognition*, *97*, 23-39.

Wood, J. N., & Spelke, E. S. (2005). Infants' enumeration of actions: numerical discrimination and its signature limits. *Developmental Science*, *8*(2), 173-181.

Publications (currently under peer-review)

Prasad, A., Wood, S. M. W., & **Wood, J. N.** (under review). Using automated controlled rearing to explore the origins of object permanence.

Wood, S. M. W. & **Wood, J. N.** (under review). Motion-based visual parsing in newborn animals.

Wood, J. N. (in revision). The development of object recognition requires visual experience with the surface features of objects.

Wood, S. M. W. & **Wood, J. N.** (under review). Using automation to combat the replication crisis: A case study from controlled-rearing studies of newborn chicks.

Wood, J. N. & Wood, S. M. W. (under review). One-shot learning of abstract object concepts in newborn animals.

Urgolites, Z., Brady, T. F., & **Wood, J. N.** (under review). Verbal interference suppresses object-scene binding in visual long-term memory.

Invited Talks

McDonnell Foundation Workshop. “Using automated controlled-rearing to study the origins of the mind.” June 2018.

Paris Descartes University. Colloquium. “Using automated controlled-rearing to study the origins of the mind.” June 2018.

University of California, Los Angeles. Cognitive Forum. “Using automated controlled-rearing to study the origins of the mind.” March 2017.

University of California, Berkeley. Colloquium. “Building newborn minds in virtual worlds.” 2016.

University of Leiden, Netherlands. *Tightening the articulation between number and language workshop*. “The origins of abstract representation: A high-throughput controlled-rearing approach.” 2016.

Massachusetts Institute of Technology. Center for Brains, Minds, & Machines Seminar Series. “Building newborn minds in virtual worlds.” May 2015.

Harvard University. Cognitive, Brain & Behavior Seminar Series. “The Origins of Object Recognition: A Controlled Rearing Approach.” May 2015.

University of Southern California. Brain and Cognitive Science Seminar Series. “Building newborn minds within virtual worlds.” 2013.

University of California, Los Angeles. Developmental Psychology Seminar. “Building newborn minds within virtual worlds.” 2013.

Occidental College. Colloquium. “Building newborn minds within virtual worlds.” 2012.

University of California, Los Angeles. Cognitive Forum. “Building newborn minds within virtual worlds.” 2012.

University of California, Los Angeles. Behavior, Evolution, & Culture Talk Series. “The Evolutionary Origins of Action Comprehension.” 2010.

University of Southern California. *What Matters to Me and Why* Talk Series. “The origins of

- knowledge.” 2010.
- University of California, Los Angeles. Linguistics Talk Series. “Building blocks of social cognition.” 2009.
- University of Southern California. College Commons Event *Modern Darwinian Controversies: From Primate Knowledge to Human Mating Strategies*. “Evolution of Knowledge Systems: Making the Leap from Primates to Humans.” 2009
- University of Southern California. Brain & Creativity Institute Seminar. “A core knowledge architecture of visual working memory.” 2009.
- University of Southern California. Phonetics Talk Series. “Building blocks of human knowledge.” 2009.
- University of New Hampshire. Colloquium. “Understanding human social cognition through studies of non-human primates.” 2008.
- University of Southern California. Social Psychology Brown Bag. “The evolutionary origins of mind reading.” 2008.
- University of Southern California. “Understanding the world through event perception.” Colloquium. 2007.
- Harvard University. Cognition, Brain and Behavior Seminar. “Visual working memory for observed actions.” 2007.
- SISSA laboratory (Scuola Internazionale Superiore di Studi Avanzati). Colloquium. “The origins of action perception.” 2007.
- Harvard University. Laboratory for Developmental Studies Seminar. “The origins of the singular/plural distinction.” 2005.

Posters, Abstracts, & Conference Papers

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- Wood, S. M. W. & Wood, J.N. (2017). "Newborn chicks solve the statistical concurrence problem." **Talk** presented at Southern California Animal Behavior Conference, Los Angeles, CA.
- Wood, S. M. W. & Wood, J.N. (2017). "One-shot learning of abstract object concepts in visually naive animals." **Poster** presented at Cognitive Development Society Conference, Portland, OR.
- Wood, J.N. (2017). “A large-scale automated replication of controlled-rearing studies.” **Talk** presented at Cognitive Development Society Pre-Conference, Portland, OR.
- Wood, J.N. (2017). “Using automated controlled rearing to explore the origins of object concepts.” **Talk** presented at Cognitive Development Society Conference, Portland, OR.
- Wood, J. N. (2017). “How visual experience shapes object recognition in the newborn brain: A controlled rearing approach.” **Talk** presented at Vision Science Society Conference, St. Pete, FL.
- Li, J., Wood, J. N., & Mintz, T. H. (2016). “Domain generality of learning non-adjacent dependencies: Evidence from visual stimuli.” **Paper** presented at 3rd ANPOLL Intl Psycholinguistics Congress: Domain Specificity in Language Acquisition and Processing.
- Wood, J. N. (2015). “The origins of object recognition: A controlled-rearing approach.” **Talk** presented at Cognitive Development Society Conference, Columbus, OH.

Wood, J. N. (2015). “The origins of object permanence: A controlled-rearing approach.” **Talk** presented at More On Development Conference, Columbus, OH.

Wood, J. N. (2011). “Origins of Action Comprehension.” **Talk** presented at the Action, Language and Neuroinformatics Workshop, University of Southern California.

Wood, J. N. (2009). “Distinct visual working memory systems for view-dependent and view-invariant representation.” **Talk** presented at APA conference, Toronto.

Wood, J. N. (2008). “Reading beneath the surface appearance of events: primate inferences about goals and intentions.” **Talk** presented at the EDICI conference. University of Vienna.

Wood, J. N., Glynn, D., & Hauser, M. D. (2007). “Rational action perception in nonhuman primates.” **Poster** presented at the workshop “Concepts, Actions, and Objects: Functional and Neural Perspectives.” Rovereto, Italy.

Barner, D., Thalwitz, D., Wood, J., & Carey, S. (2005). “Overcoming the set-size limitation of object representations: plural morphology as the source of “more than one”.” **Poster** presented at the Biennial Meeting of the Society for Research in Child Development, Atlanta, GA.

Wood, J. N. (2005). “Event-file representations in human infants.” **Poster** presented at the Biennial Meeting of the Society for Research in Child Development, Atlanta, GA.

Barner, D., Thalwitz, D., Wood, J. N., & Carey, S. (2005). “Plural morphology as the source of “more than one”.” **Paper** presented to the 29th annual Boston University Conference on Language Development.

Barner, D., Kibbe, M., Wood, J. N., & Carey, S. (2005). “Set-based quantification in 15-month-old infants.” **Poster** presented at the 4th Biennial Meeting of the Cognitive Development Society, San Diego, CA.

Wood, J. N. & Spelke, E. S. (2004). “Chronometric studies of numerical processing in five-month-old infants.” **Poster** presented at the Biennial International Society for Infant Studies, Chicago, IL.

Wood, J. N., Kouider, S., & Carey, S. (2004). “The emergence of the singular/plural distinction.” **Poster** presented at the Biennial International Society for Infant Studies, Chicago, IL.

Ganea, P. & Wood, J. N. (2003). “Do young children learn words from picture books?” **Poster** presented at the Biennial Meeting of the Society for Research in Child Development, Miami, FL.

Teaching

Fall 2018	Instructor , <i>Origins of the Mind</i> , Undergraduate Lecture, 148 students
Spring 2018	Instructor , <i>Animal Behavior</i> , Undergraduate Lecture, 61 students
Fall 2017	Instructor , <i>Origins of the Mind</i> , Undergraduate Lecture, 106 students

Spring 2017	<u>Instructor</u> , <i>Animal Behavior</i> , Undergraduate Lecture, 64 students
Fall 2016	<u>Instructor</u> , <i>Origins of the Mind</i> , Undergraduate Lecture, 104 students
Spring 2015	<u>Instructor</u> , <i>Animal Behavior</i> , Undergraduate Lecture, 73 students
Fall 2014	<u>Instructor</u> , <i>Origins of the Mind</i> , Undergraduate Lecture, 165 students
Spring 2014	<u>Instructor</u> , <i>Animal Behavior</i> , Undergraduate Lecture, 58 students
Spring 2014	<u>Instructor</u> , <i>Animal Behavior</i> , Undergraduate Lecture, 56 students
Fall 2013	<u>Instructor</u> , <i>Origins of the Mind</i> , Undergraduate Lecture, 130 students
Spring 2013	<u>Instructor</u> , <i>Animal Behavior</i> , Undergraduate Lecture, 50 students
Spring 2013	<u>Instructor</u> , <i>Animal Behavior</i> , Undergraduate Lecture, 54 students
Spring 2012	<u>Instructor</u> , <i>Animal Behavior</i> , Undergraduate Lecture, 76 students
Spring 2012	<u>Instructor</u> , <i>Origins of the Mind</i> , Undergraduate Lecture, 102 students
Fall 2011	<u>Instructor</u> , <i>Animal Behavior</i> , Undergraduate Lecture, 76 students
Spring 2011	<u>Instructor</u> , <i>Origins of Human Nature</i> , Graduate Seminar, 10 students
Spring 2011	<u>Instructor</u> , <i>Origins of the Mind</i> , Undergraduate Lecture, 101 students
Fall 2010	<u>Instructor</u> , <i>Animal Behavior</i> , Undergraduate Lecture, 59 students
Spring 2010	<u>Instructor</u> , <i>Animal Behavior</i> , Undergraduate Lecture, 39 students
Spring 2010	<u>Instructor</u> , <i>Origins of the Mind</i> , Undergraduate Lecture, 105 students
Fall 2009	<u>Instructor</u> , <i>Animal Behavior</i> , Undergraduate Lecture, 22 students
Spring 2009	<u>Instructor</u> , <i>Special Topics</i> , Undergraduate Lecture, 4 students
Spring 2009	<u>Instructor</u> , <i>Origins of Human Knowledge</i> , Graduate Seminar, 5 students
Fall 2008	<u>Instructor</u> , <i>Origins of the Mind</i> , Undergraduate Lecture, 9 students

Teaching Evaluations

Undergraduate Courses	4.75/5.00 (average from 911 total evaluations)
Graduate Seminars	4.93/5.00 (average from 14 total evaluations)

Graduate Students

2009-2015	Aditya Prasad
2010-2013	Jason Goldman
2010-2013	Zhisen Jiang Urgolites

PhD Committees

Kathleen Garrison	Brad Gasser	Aditya Prasad
Jason Goldman	Susan Geffen	Nader Noori
Zhisen Jiang Urgolites	Mark Paradis	Jared Reser
Vivian Jia Li	Jess Hartel	Hao Wang

Qualifications Committees

Gurveen Chopra	Susan Geffen	Brad Gasser
Jared Reser	Chuoying Ouyang	Jess Hartel
Hao Wang	Jason Goldman	James Askew
Zhisen Jiang	Aditya Prasad	Nader Noori
Kathleen Garrison	Kathleen Garrison	Pan Wang

University and Department Service

Spring 2018	Panelist, Undergraduate Admissions Fair
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Spring 2017 Graduate Admissions Committee
 2013-2014 Executive Committee
 Spring 2014 Graduate Admissions Committee
 2011-2012 Executive Committee
 Spring 2013 Judge, Undergraduate Research Expo
 Spring 2011 Graduate Admissions Committee
 2010-2011 Faculty Search Committee
 2010-2011 Hiring Initiatives Consultation Committee
 2009-2010 Executive Committee

Ad hoc Manuscript Reviewer

<i>Animal Cognition</i>	<i>Experimental Brain</i>	<i>Psychological Science</i>
<i>Animal Behaviour</i>	<i>Research</i>	<i>Proceedings of the Royal</i>
<i>Attention, Perception &</i>	<i>JEP: Human Perception &</i>	<i>Society</i>
<i>Psychophysics</i>	<i>Performance</i>	<i>PNAS</i>
<i>Cognition</i>	<i>Memory & Cognition</i>	<i>Psychological Science</i>
<i>Current Biology</i>	<i>Perception &</i>	<i>Quarterly Journal of</i>
<i>Current Zoology</i>	<i>Psychophysics</i>	<i>Experimental Psychology</i>
<i>Developmental Science</i>	<i>Perspectives on</i>	<i>Science</i>