Christopher A. Baldassano

Contact Information	Princeton Neuroscience Institute Washington Rd chrisb@princeton.edu Princeton, NJ 08544 USA http://www.chrisbaldassano.com/

Employment

Columbia University, Assistant Professor,
Department of Psychology (starting July 2018)

Princeton University, Postdoctoral Research Associate,
Princeton Neuroscience Institute (2015-current)
  PIs: Professors Uri Hasson and Ken Norman

Education

Stanford University, Ph.D., Computer Science, March 2015
  Advisor: Professor Fei-Fei Li
  Co-Advisor: Diane M. Beck, University of Illinois at Urbana-Champaign
  Area of Study: Cognitive Neuroscience and Artificial Intelligence

Princeton University B.S.E., Electrical Engineering, June 2009
  Summa cum Laude (GPA 3.97)
  Certificate in Robotics and Intelligent Systems
  Certificate in Engineering Physics

Research Interests

Neural mechanisms of real-world perception and memory
Applications of machine learning and probabilistic models in neuroimaging

Refereed Publications

C. Baldassano, J. Chen, A. Zadbood, J.W. Pillow, U. Hasson, K.A. Norman. "Discovering event structure in continuous narrative perception and memory." Neuron, 2017. 10.1016/j.neuron.2017.06.041

K. Vodrahalli, P.H. Chen, Y. Liang, C. Baldassano, J. Chen, E. Yong, C. Honey, U. Hasson, P. Ramadge, K. Norman, S. Arora. "Mapping Between fMRI Responses to Movies and their Natural Language Annotations." NeuroImage, 2017. 10.1016/j.neuroimage.2017.06.042

C. Baldassano, A. Esteva, L. Fei-Fei, D.M. Beck, "Two distinct scene processing networks connecting vision and memory." eNeuro, 2016. 10.1523/ENEURO.0178-16.2016

C. Baldassano, L. Fei-Fei, D.M. Beck, "Pinpointing the peripheral bias in neural scene processing networks during natural viewing." Journal of Vision, 2016. 10.1167/16.2.9

C. Baldassano, D.M. Beck, L. Fei-Fei, "Human-Object Interactions Are More than the Sum of Their Parts." Cerebral Cortex, 2016. 10.1093/cercor/bhw077

M.R. Greene, C. Baldassano, A. Esteva, D.M. Beck, L. Fei-Fei, "Visual Scenes are Categorized by Function." Journal of Experimental Psychology: General, 2016. 10.1037/xge0000129

C. Baldassano, D.M. Beck, L. Fei-Fei, "Parcellating connectivity in spatial maps." PeerJ, 2015. 10.7717/peerj.784

C. Baldassano, D.M. Beck, L. Fei-Fei, "Differential Connectivity Within the Parahippocampal Place Area." NeuroImage, 2013. 10.1016/j.neuroimage.2013.02.073

C. Baldassano, M.C. Iordan, D.M. Beck, L. Fei-Fei. "Discovering Voxel-Level Functional Connectivity Between Cortical Regions." Machine Learning and Interpretation in Neuroimaging Workshop, Neural Information Processing Systems (NIPS) 2012.

C. Baldassano, M.C. Iordan, D.M. Beck, L. Fei-Fei, "Voxel-level functional connectivity using spatial regularization," NeuroImage, 2012. 10.1016/j.neuroimage.2012.07.046

MANUSCRIPTS
UNDER REVIEW
OR IN PREP

C. Baldassano, A. Saxe. "A theory of learning dynamics in perceptual decision-making." In preparation.

AWARDS

ScienceSeeker Editor's Selection for article "How deep is the brain?" (2016)
Best Presenter Award, Science Teaching Through Art (STAr) (2014)
NSF Graduate Research Fellowship (2010-2012, 2013-2014)
James Hayes-Edgar Palmer Prize in Engineering (2009)
Jeffrey O. Kephart '80 Prize in Engineering Physics (2009)
G. David Forney Jr. Prize in communication sciences, systems and signals (2009)
Summer Undergraduate Fellowship in Sensor Technologies (SUNFEST) (2008)
Shapiro Prize for Academic Excellence (2006 and 2007)

TEACHING AND
OUTREACH
EXPERIENCE

Undergraduate courses
  Instructor for Princeton Neuroscience Junior Seminar (Fall 2015, Fall 2016)
  Teaching Assistant for Stanford CS109 (Winter 2010): Intro to Probability
  Teaching Assistant for Stanford CS121 (Spring 2010): Intro to Artificial Intelligence

Enrichment and Outreach programs
  Designed and taught 14-week courses for Yu's Elite Education (Fall 2015)
       Introduction to Programming in Python
       Advanced Programming and Algorithms
  Volunteer teacher for Stanford's and Princeton's SPLASH community outreach programs (Spring 2010, Spring 2012, Fall 2013, Spring 2014, Spring 2015): Designed and taught "The Science of Optical Illusions" to over 100 local middle school and high school students
  Stanford "Science Teaching Through Art" (STAr) (Fall 2015): Designed and presented research poster at local high school and community college outreach events

Tutoring
  Private tutoring in physics, mathematics, and computer science (2015-current)
  Tau Beta Pi Study Hall Tutor for ELE 201: Signals and Systems (2008-2009)
  McGraw Study Hall Tutor for PHI 201: Intro Logic and PHY 104: E&M (2008-2009)
  Peer Tutor for Butler College at Princeton University (2007-2009): Assisted students in physics and math courses

CONFERENCE AND
WORKSHOP
PRESENTATIONS

I. I. Groen, M.R. Greene, C. Baldassano, L. Fei-Fei, D.M. Beck, C.I. Baker. "Convolutional neural networks best predict representational dissimilarity in scene-selective cortex: comparing computational, object and functional models." Oral Presentation at the Vision Sciences Society Annual Meeting, St. Pete Beach, FL (2017).

I. I. Groen, M.R. Greene, C. Baldassano, D.M. Beck, L. Fei-Fei, C.I. Baker. "Comparing computational, object and functional models of scene representation in the human brain." Oral Presentation at the Society for Neuroscience Annual Meeting, San Diego, CA (2016).

M. Regev, E. Simony, C. Baldassano, U. Hasson. "Attention selectively modulates dynamical functional connectivity in processing of simultaneously presented spoken and written narratives." Oral Presentation at the Society for Neuroscience Annual Meeting, San Diego, CA (2016).

C. Baldassano, U. Hasson, K.A. Norman. "Representation of real-world event schemas during narrative perception." Poster Presentation at the Society for Neuroscience Annual Meeting, San Diego, CA (2016).

J.W. Antony, C. Baldassano, M. Aly, K.A. Norman, N.B. Turk-Browne. "Reconstructing spatial location and forward planning during navigation." Poster Presentation at the Society for Neuroscience Annual Meeting, San Diego, CA (2016).

C. Baldassano, J. Chen, J. Pillow, U. Hasson, K. Norman. "Discovering event structure in continuous narrative perception and memory." Oral Presentation at the Manhattan Area Memory Meeting, New York, NY (2016).

C. Baldassano, J. Chen, J. Pillow, U. Hasson, K. Norman. "Tracking brain activity during continuous perception and recall." Oral Presentation at the Context and Episodic Memory Symposium, Philadelphia, PA (2016).

C. Baldassano*, A. Saxe*. "A theory of learning dynamics in perceptual decision-making." Poster Presentation at the Computational and Systems Neuroscience (Cosyne) conference, Salt Lake City, NV (2016).

C. Baldassano, A. Esteva, D.M. Beck, L. Fei-Fei. "Two distinct scene processing networks connecting vision and memory." Oral Presentation at the Society for Neuroscience Annual Meeting, Chicago, IL (2015).

C. Baldassano, A. Esteva, D.M. Beck, L. Fei-Fei. "Two distinct scene processing networks connecting vision and memory." Oral Presentation at the Vision Sciences Society Annual Meeting, St. Pete Beach, FL (2015).

M.R. Greene, C. Baldassano, A. Esteva, D.M. Beck, L. Fei-Fei. "Functions Provide a Fundamental Categorization Principle for Scenes." Oral Presentation at the Vision Sciences Society Annual Meeting, St. Pete Beach, FL (2015).

C. Baldassano, D.M. Beck, L. Fei-Fei. "Parcellating connectivity in spatial maps." Poster Presentation at BayLearn (Bay Area Machine Learning Symposium), Berkeley, CA (2014).

C. Baldassano, A. Esteva, D.M. Beck, L. Fei-Fei. "Comparing and parcellating voxel-scale multimodal human brain connectivity." Poster Presentation at the Fourth Biennial Conference on Resting State / Brain Connectivity, Cambridge, MA (2014).

C. Baldassano, D.M. Beck, L. Fei-Fei. "Supervoxel parcellation of visual cortex connectivity." Poster Presentation at the Vision Sciences Society Annual Meeting, St. Pete Beach, FL (2014).

C. Baldassano, D.M. Beck, L. Fei-Fei. "Differential Connectivity Within the Parahippocampal Place Area." Oral Presentation at the Vision Sciences Society Annual Meeting, Naples, FL (2013).

C. Baldassano, D.M. Beck, L. Fei-Fei. "Differential Connectivity Within the Parahippocampal Place Area." Poster Presentation at the Cognitive Neuroscience Society Annual Meeting, San Francisco, CA (2013).

C. Baldassano, M.C. Iordan, D.M. Beck, L. Fei-Fei. "Discovering Voxel-Level Functional Connectivity Between Cortical Regions." Oral and Poster Presentation at the Machine Learning and Interpretation in NeuroImaging Workshop, NIPS (2012).

C. Baldassano, D.M. Beck, L. Fei-Fei. "Neural Representation of Human-Object Interactions." Oral Presentation at the Vision Sciences Society Annual Meeting, Naples, FL (2012).

A.G. Lustig, C. Baldassano, E. Caddigan, L. Fei-Fei, D.M. Beck. "Does category-based attention change the representation of scene category?" Poster Presentation at the Cognitive Neuroscience Society Annual Meeting, Chicago, IL (2012).

M.C. Iordan, C. Baldassano, D.B. Walther, D.M. Beck, L. Fei-Fei. "Translation Invariance of Natural Scene Categories." Oral Presentation at the Vision Sciences Society Annual Meeting, Naples, FL (2011).

C. Baldassano, M.C. Iordan, D.M. Beck, L. Fei-Fei. "Fine-Grained Functional Connectivity using Spatial Regularization." Poster Presentation at the NIPS Workshop on Machine Learning and Interpretation in Neuroimaging (2011).

C. Baldassano, M.C. Iordan, D.M. Beck, L. Fei-Fei. "Objects in context: decoding and connectivity." Poster Presentation at the Collaborative Research in Computational Neuroscience Principal Investigator Meeting, Princeton, NJ (2011).

C. Baldassano, M.C. Iordan, D.M. Beck, L. Fei-Fei. "Decoding objects undergoing contextual violations." Poster Presentation at the Vision Sciences Society Annual Meeting, Naples, FL (2011).

PROFESSIONAL EXPERIENCE	Research Intern at Google, Mountain View (2013): Designed and implemented a prototype system for semantic video understanding
	Software Developer at the American College of Radiology Imaging Network (ACRIN) (2009-2010): Redesigned and implemented the *iPad* plugin for the OsiriX image viewer in Objective C, as part of the National Cancer Institutes Cancer Biomedical Informatics Grid (caBIG)
	Software Developer at Sapling, Inc. (2008): Wrote and tested production-quality code for an embedded ARM9 digital clock system
	Intern at Kulicke & Soffa Industries Inc. (2006): Developed a C# testing program for linear motors and a VBasic USB application for monitoring wire bonder power systems
SERVICE	Volunteer reviewer for: Attention, Perception, & Psychophysics Behavioural Brain Research Cerebral Cortex European Conference on Computer Vision (ECCV) IEEE Conference on Computer Vision and Pattern Recognition (CVPR) IEEE Journal of Selected Topics in Signal Processing IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

International Conference on Computer Vision (ICCV)
Journal of Neuroscience
Journal of Neuroscience Methods
NeuroImage
Neural Information Processing Systems (NIPS)
PLOS ONE

Program Committee member PRNI 2016: the 6th International Workshop on Pattern Recognition in Neuroimaging.

Protocol Director for all human subjects research in Fei-Fei Li's lab (2010-2015)

Organizer for the Probabilistic AI Lunch (PAIL) (2012-14) (http://pail.pbworks.com/)

Organizer for the Cognition and Computation reading group (2010-2015) (http://braincs.wiki.zoho.com/)

OTHER
PUBLICATIONS

A. Saxe, C. Baldassano. "Convergence properties of deep linear networks." CS229T Final Project Report, 2014.

C. Baldassano, G. Franken, J. Mayer, A. Saxe, D. Yu. "Kratos: Princeton University's Entry in the 2008 IGVC." 21st Annual IS&T/SPIE Symposium on Electronic Imaging, Proc. Vol. 7252, 72520I (2009); DOI:10.1117/12.810509.

C. Baldassano. "Compact Attitude Sensor System using SR-UKF." National Science Foundation SUNFEST 2008 Report TR-CST12SEP08, p. 164-195.

I. Ashwash, A.R. Atreya, C. Baldassano, D. Benjamin, B.C. Cattle, B.M. Collins, A. Downey, G.H. Franken, J. Glass, Z. Glass, L. Gorman, J.S. Herbach, W. Hu, U. Javed, J.R. Mayer, S.M. Momen, A.M. Saxe, S.N. Schiffres, D. Yu, A.L. Kornhauser. "Princeton University Technical Paper." Defense Advanced Research Projects Agency (DARPA), Nov. 2007.