

Christopher A. Baldassano

CONTACT INFORMATION	Columbia University 1190 Amsterdam Ave 370 Schermerhorn Hall New York, NY 10027	c.baldassano@columbia.edu http://www.chrisbaldassano.com/
EMPLOYMENT	Columbia University , Assistant Professor, Department of Psychology (2018-) Princeton University , Postdoctoral Research Associate, Princeton Neuroscience Institute (2015-2018) 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 Princeton University B.S.E., Electrical Engineering, June 2009 <i>Summa cum Laude</i> (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 , U. Hasson, K.A. Norman. “Representation of real-world event schemas during narrative perception.” <i>Journal of Neuroscience</i> , 2018. 10.1523/JNEUROSCI.0251-18.2018 I.I.A. Groen, M.R. Greene, C. Baldassano , L. Fei-Fei, L., D.M. Beck, C.I. Baker. “Distinct contributions of functional and deep neural network features to representational similarity of scenes in human brain and behavior.” <i>eLife</i> , 2018. 10.7554/eLife.32962 C. Baldassano , J. Chen, A. Zadbood, J.W. Pillow, U. Hasson, K.A. Norman. “Discovering event structure in continuous narrative perception and memory.” <i>Neuron</i> , 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.” <i>NeuroImage</i> , 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.” <i>eNeuro</i> , 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.” <i>Journal of Vision</i> , 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.” <i>Cerebral Cortex</i> , 2016. 10.1093/cercor/bhw077	

	<p>M.R. Greene, C. Baldassano, A. Esteva, D.M. Beck, L. Fei-Fei. “Visual Scenes are Categorized by Function.” <i>Journal of Experimental Psychology: General</i>, 2016. 10.1037/xge0000129</p> <p>C. Baldassano, D.M. Beck, L. Fei-Fei, “Parcellating connectivity in spatial maps.” <i>PeerJ</i>, 2015. 10.7717/peerj.784</p> <p>C. Baldassano, D.M. Beck, L. Fei-Fei. “Differential Connectivity Within the Parahippocampal Place Area.” <i>NeuroImage</i>, 2013. 10.1016/j.neuroimage.2013.02.073</p> <p>C. Baldassano, M.C. Iordan, D.M. Beck, L. Fei-Fei. “Discovering Voxel-Level Functional Connectivity Between Cortical Regions.” <i>Machine Learning and Interpretation in Neuroimaging Workshop, Neural Information Processing Systems (NIPS)</i> 2012.</p> <p>C. Baldassano, M.C. Iordan, D.M. Beck, L. Fei-Fei. “Voxel-level functional connectivity using spatial regularization,” <i>NeuroImage</i>, 2012. 10.1016/j.neuroimage.2012.07.046</p>
PUBLIC PREPRINTS	<p>C. Ellis, C. Baldassano, A.C. Schapiro, M.B. Cai, J.D. Cohen. “Facilitating open-science with realistic fMRI simulation: validation and application.” <i>bioRxiv</i>, 2019. 10.1101/532424</p> <p>M. Silva, C. Baldassano, L. Fuentemilla. “Rapid memory reactivation at movie event boundaries promotes episodic encoding.” <i>bioRxiv</i>, 2019. 10.1101/511782</p> <p>C. Chen, Q. Lu, Andre Beukers, C. Baldassano, K. Norman. “Learning to Apply Schematic Knowledge to Novel Instances.” <i>arXiv</i>, 2019. arXiv:1902.09006</p>
MANUSCRIPTS IN PREPARATION	<p>C. Baldassano, A. Saxe. “A theory of learning dynamics in perceptual decision-making.” In preparation.</p>
AWARDS	<p>Lenfest Junior Faculty Development Award (2018)</p> <p><i>ScienceSeeker</i> Editor’s Selection for article “How deep is the brain?” (2016)</p> <p>Best Presenter Award, Science Teaching Through Art (STAr) (2014)</p> <p>NSF Graduate Research Fellowship (2010-2012, 2013-2014)</p> <p>James Hayes-Edgar Palmer Prize in Engineering (2009)</p> <p>Jeffrey O. Kephart ’80 Prize in Engineering Physics (2009)</p> <p>G. David Forney Jr. Prize in communication sciences, systems and signals (2009)</p>
INVITED TALKS AND WORKSHOPS	<p>Flux Developmental Cognitive Neuroscience Congress (2019)</p> <p>CUNY Graduate Center Neuroscience Seminar Series (2019)</p> <p>Columbia University Department of Human Development Colloquium (2019)</p> <p>Princeton BrainIAK Workshop (2019)</p> <p>Columbia University Psychology Colloquium (2018)</p> <p>USA Memory Championship (2018)</p> <p>TEDxCarnegieLake (2017)</p>
TEACHING AND OUTREACH EXPERIENCE	<p><i>Undergraduate courses</i></p> <p>GU4239: Cognitive Neuroscience in Narrative Film (Fall 2018)</p> <p>UN1610: Introductory Statistics for Behavioral Scientists (Spring 2019)</p> <p>Instructor for Princeton Neuroscience Junior Seminar (Fall 2015, Fall 2016, Fall 2017)</p>

Enrichment and Outreach programs

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

MENTORSHIP

Postdoctoral fellows

Halle Dimsdale-Zucker * (Columbia University)

Samantha Cohen * (Columbia University)

Graduate students

Matthew Siegelman * (Columbia University)

Hannah Tarder-Stoll * (Columbia University)

Marta Silva (Universidade de Lisboa)

Jamal Williams (Princeton University)

Rolando Masis-Obando (Princeton University)

Research assistants

Alexandra Reblando * (Columbia University)

Caroline Lee * (Columbia University)

* Primary or co-primary advisor

MEDIA COVERAGE "A toolkit for data transparency takes shape." *Nature*, August 20, 2018.

"'Sherlock' in the depths of the brain." *Austrian Broadcasting Corporation*, August 4, 2017.

"Scientists Legit Studied The Brains Of People Watching 'Sherlock' And Discovered Something Super Cool." *Gizmodo Australia*, August 4, 2017.

"'Sherlock' and the case of narrative perception." *Science Daily*, August 2, 2017.

SERVICE

Volunteer reviewer

Attention, Perception, & Psychophysics

Behavioural Brain Research

Cerebral Cortex

Cognitive Research: Principles and Implications

Current Opinion in Neurobiology

Developmental Science

eLife

eNeuro

European Conference on Computer Vision (ECCV)

Frontiers in Human Neuroscience

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)

International Workshop on Pattern Recognition in Neuroimaging

Journal of Neuroscience
 Journal of Neuroscience Methods
 Journal of Vision
 Nature Human Behavior
 NeuroImage
 Neural Information Processing Systems (NIPS)
 PLOS ONE
 Proceedings of the National Academy of Sciences (PNAS)
 Trends in Cognitive Science

CONFERENCE AND
 WORKSHOP
 PRESENTATIONS

- C.S. Lee, M. Aly, C. Baldassano. “Anticipation of temporally structured events in the brain.” Poster Presentation at the Context and Episodic Memory Symposium, Philadelphia, PA (2019).
- M. Siegelman and C. Baldassano. “Modeling brain representations of structured schematic poetry with recurrent neural networks.” Poster Presentation at the Context and Episodic Memory Symposium, Philadelphia, PA (2019).
- M. Silva, C. Baldassano, L. Fuentemilla. “Electrophysiological signatures of event segmentation during movie viewing and recall.” Poster Presentation at the Society for Neuroscience Annual Meeting, San Diego, CA (2018).
- R. Masis-Obando, K.A. Norman, C. Baldassano. “Decoding mental walkthroughs of spatial memories in an immersive virtual reality environment.” Poster Presentation at the Society for Neuroscience Annual Meeting, San Diego, CA (2018).
- J. Williams, C. Baldassano, J. Chen, U. Hasson, K.A. Norman. “Exploring event structure in song perception.” Poster Presentation at the Society for Neuroscience Annual Meeting, San Diego, CA (2018).
- C. Baldassano. “Perception and memory of schematic narrative events.” Oral Presentation at the International Conference on Learning and Memory (2018).
- J. Williams, C. Baldassano, J. Chen, U. Hasson, K.A. Norman. “Exploring event structure in song perception.” Oral Presentation at the Context and Episodic Memory Symposium, Philadelphia, PA (2018).
- A. Beukers, C. Baldassano, U. Hasson, K.A. Norman. “Learning the statistics of events.” Poster Presentation at the Context and Episodic Memory Symposium, Philadelphia, PA (2018).
- C. Baldassano, R. Masis-Obando, U. Hasson, K.A. Norman. “Perception and recall of narrative event schemas.” Poster Presentation at the Society for Neuroscience Annual Meeting, Washington, DC (2017).
- J.D. Cohen, M. Lesnick, B. Keller, C. Baldassano, A.C. Schapiro, C.T. Ellis. “Using realistic, synthetic fMRI data to validate Topological Data Analysis as a tool for fMRI.” Poster Presentation at the Society for Neuroscience Annual Meeting, Washington, DC (2017).
- J. A. Williams, J. Chen, C. Baldassano, U. Hasson, K.A. Norman. “Neural representation of musical contexts in high-level cortical regions.” Poster Presentation at the Society for Neuroscience Annual Meeting, Washington, DC (2017).
- 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).

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.