

Michelle R. Greene

Curriculum Vitae

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October 2022

EDUCATION

- 2009 Ph.D., Cognitive Science, Massachusetts Institute of Technology
- 2004 B.S., Psychobiology, University of Southern California

PROFESSIONAL APPOINTMENTS

- 2017 - Assistant Professor of Neuroscience, Bates College
- 2016 - 2017 Research Scientist, Department of Computer Science, Stanford University
- 2015 - 2016 Assistant Professor of Computational Sciences, Minerva Schools at KGI
- 2013 - 2015 Research Fellow, Department of Computer Science, Stanford University
- 2011 - 2013 Postdoctoral Fellow, Department of Computer Science, Stanford University
- 2009 - 2011 Postdoctoral Fellow, Harvard Medical School, Brigham & Women's Hospital,
Department of Surgery

GRANT SUPPORT

- 2019-2023 National Science Foundation (1920896) "RII Track-2 FEC: The Visual Experience Database: A Large-Scale Point-of-View Video Database for Vision Research." \$3,974,003.00
Role: PI
- 2017-2021 National Science Foundation (BCS 1736394) "Uncovering the Neural Dynamics of Scene Categorization through Electroencephalography, Machine Learning, and Neuromodulation" \$186,708.00
Role: Co-PI
- 2017 Digital Course Design/Redesign Initiative (Bates College)
- 2015 Center for Cognitive and Neurobiological Imaging Seed Grant (Stanford)
- 2009-2012 Ruth L. Kirschstein National Research Service Award (NEI-NRSA)
- 2005-2009 National Science Foundation Graduate Research Fellowship (NSF)

PUBLICATIONS

Note: Bates College students are underlined
Articles in Press

Schmidt, B., Self, J.S. & **Greene, M.R.** (in press) Early Visual Activity in EEG Reflects Semantic Scene Category Similarity. *Visual Cognition*.

Articles in Revision, Under Review, and In Preparation

Greene, M.R. & Rohan, A. (in revision). The basic level of abstraction is prioritized in early neural representations of objects.

Greene, M.R. & Trivedi, D. (under review) Spatial scene memories contain a fixed amount of semantic information.

Shankar, B., Binaee, K. Szekely, C. Sinnott, M. Lescroart & P. MacNeilage & **Greene, M.R.** (in revision) Ergonomic Design Development and Evaluation of Stability and Comfort for the Visual Experience Database Headset

Davis, W. & **Greene, M.R.** (in revision) Learning Invariant Object Representations in Deep Convolutional Neural Networks.

Greene, M.R., Fifield, A., Mohamed, A., Si, W. & Hart, J. There's No Place Like Home: Assessing the Efficacy of Computer Vision on Geographically Diverse Scenes.

Siegart, J., Zhou, W., & **Greene, M.R.** The Role of Recurrent Processing in Visual Scene Categorization.

Jordan, M.C., **Greene, M.R.**, L. Fei-Fei., & Beck, D.M. Sequential Warping of Cortical Representational Geometries According to Cognitive Principles Contributes to the Emergence of Separable Categories.

Greene, M.R. & Wolfe, J.M., Estimating Human Observers' Contextual Knowledge with Shannon's Guessing Game.

Greene, M.R., Botros, A., Beck, D., & L Fei-Fei. Revealing Internal Category Representations.

Refereed Articles

Citations

22 articles. 2720 citations. H-index: 18 (Google Scholar)

2021 Hansen, B.C., **Greene, M.R.**, & Field, D.J. Dynamic Electrode-to-Image (DETI) Mapping Reveals the Human Brain's Spatiotemporal Code of Visual Information. *PLoS Computational Biology*.

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2020 **Greene, M.R.** & Hansen, B.C. Disentangling the Independent

15

- Contributions of Visual and Conceptual Features to the Spatiotemporal Dynamics of Scene Categorization. *The Journal of Neuroscience*, 40(27) 5283-5299.
- 2019 Hansen, B. C., Field, D. J., **Greene, M. R.**, Olson, C., & Miskovic, V. Towards a state-space geometry of neural responses to natural scenes: A steady-state approach. *NeuroImage*, 201, 116027. 3
- 2019 Tadros, T., Cullen, N., **Greene, M.R.**, & Cooper, E.A. Assessing Neural Network Scene Classification from Degraded Images. *ACM Transactions on Applied Perception*, 14.4(2019): 21. 18
- 2018 **Greene, M.R.** Hansen, B.C. Shared Spatiotemporal Category Representations in Biological and Artificial Neural Networks. *PLoS Computational Biology* 14(7), e1006327. 31
- 2018 Groen, I.I.A., **Greene, M.R.**, Baldassano, C., Beck, D.M., L. Fei-Fei & Baker, C.I. Distinct Contributions of Functional and Deep Neural Network Features to Representational Similarity of Scenes in Human Brain and Behavior. *eLife* 7, e32962. 91
- 2016 Vessel, E.A., Biederman, I., Subramaniam, S., & **Greene, M.R.** Effective Signaling of Surface Boundaries by L-Vertices Reflect the Consistency of their Contrast in Natural Images. *Journal of Vision*. 2
- 2016 Jordan, M.C., **Greene, M.R.**, Beck, D.B., & L. Fei-Fei. Typicality Sharpens Category Representations in Object-Selective Cortex. *NeuroImage*, 134, 170-179. 32
- 2016 **Greene, M.R.** Estimates of Object Frequency are Frequently Overestimated. *Cognition*, 149, 6-10. 17
- 2016 **Greene, M.R.**, Baldassano, C., Esteva, A., Beck, D.M., & L. Fei-Fei. Visual Scenes are Categorized by Function. *Journal of Experimental Psychology: General*, 145(1), 82-94. 75
- 2015 Jordan, M.C., **Greene, M.R.**, Beck, D. & Li Fei-Fei. (2015) Basic level category structure emerges gradually across human ventral visual cortex. *Journal of Cognitive Neuroscience* 27(7), 1427-1446. 40
- 2015 **Greene, M.R.**, Botros, A., Beck, D.M. & L. Fei-Fei. What you see is what you expect: rapid scene understanding benefits from prior experience. *Attention, Perception, & Psychophysics*, 77(4), 1239-1251. 58
- 2014 **Greene, M.R.** & L. Fei-Fei. Visual Categorization is Automatic 66

- and Obligatory: Evidence from a Stroop-like Paradigm. *Journal of Vision*, 14(1).
- 2013 **Greene, M.R.**, Statistics of High-level Scene Context. 73
Frontiers in Perception Science. 4, 777.
- 2013 Boucart, M., Moroni, C., Thiabaut, M., Szaffarczyk, M., & 74
Greene, M.R., Scene categorization at large visual eccentricities.
Vision Research, 86, 35-42.
- 2012 **Greene, M.R.** Liu, T. & Wolfe, J.M., Reconsidering Yarbus: 182
Pattern Classification Cannot Predict Observers' Task From
Scan Paths. *Vision Research*, 62, 1-8.
- 2011 **Greene, M.R.**, & Wolfe, J.M., Global Image Properties Do 24
Not Guide Visual Search. *Journal of Vision*, 11(6).
- 2011 Wolfe, J.M., Vo, M.L-H., Evans, K.K., & **Greene, M.R.** 517
Visual search in scenes involves selective and non-selective
pathways. *Trends in Cognitive Sciences*. 15(2), 77-84.
- 2011 Park, S., Brady, T.F., **Greene, M.R.** & Oliva, A. 234
Disentangling scene content from spatial boundary:
Complementary roles for the PPA and LOC in representing
real-world scenes *Journal of Neuroscience*. 31(4), 1333-1340.
- 2010 **Greene, M.R.**, & Oliva, A. Adapting to Scene Space: High-Level 75
Aftereffects to Global Scene Properties. *Journal of Experimental
Psychology: Human Perception and Performance*. 36(6), 1430-1432.
- 2009 **Greene, M.R.** & Oliva, A. The Briefest of Glances: the Time 512
Course of Natural Scene Understanding. *Psychological Science*,
20(4), 464-472.
- 2009 **Greene, M.R.** & Oliva, A. Recognition of Natural Scenes from 484
Global Properties: Seeing the Forest Without Representing the
Trees. *Cognitive Psychology*, 58(2), 137-176.

Refereed Book Chapters

- 2021 **Greene, M.R.** Scene Perception and Understanding. *Oxford Encyclopedia of Psychology*.
(in press)
- 2019 **Greene, M.R.** The Information Content of Visual Categories. In Federmeier &
Beck (eds) *Psychology of Learning and Motivation: Volume 70*.

Refereed Conference Proceedings

- 2018 **Greene, M.R.** & Hansen, B.C. From Pixels to Categories: Unique and Early Contributions of Functional and Visual Features. *Proceedings of Cognitive Computational Neuroscience*.
* Winner, Best Paper Award.
- 2012 **Greene, M.R.**, & Li Fei-Fei. Automatic basic-level object and scene categorization. *Visual Cognition*, 20(9), 1028-1031.
- 2006 **Greene, M.R.** & Oliva, A. Natural Scene Categorization from Conjunctions of Ecological Global Properties. *Proceedings of the 28th Annual Conference of the Cognitive Science Society*, Vancouver, July, 291-296.

Book Reviews

- 2015 Kveraga & Bar, *Scene Vision*. Published in *Perception*.

Open-Source Educational Material

- 2019 “Computational Neuroscience” *Open Educational Resources*. 1.
<https://scarab.bates.edu/oer/1>

CONFERENCE ACTIVITY

Bates College Students are underlined.

Talks

- 2022 “What we don’t see in image databases” (w/ J.A. Hart and A. Mohamed). Talk at Vision Sciences Society Meeting May 13-18.
- 2022 “Dynamic neural representations reveal flexible feature use during scene categorization” (w/ B.C. Hansen). Talk at Vision Sciences Society Meeting May 13-18.
- 2022 “The role of texture summary statistics in material recognition from drawings and photographs” (w/ B. Balas) Talk at Vision Sciences Society Meeting May 13-18.
- 2022 “Methodological considerations on sampling visual experience with mobile eye tracking” (w/ K. Binaee, M.L. Lescroart, B. Shankar, C. Sinott, J.A. Hart, A. Biswas, I. Nudnou, B.J. Balas & P. MacNeilage). Talk accepted at Cognitive Neuroscience Society meeting April 22-26.
- 2021 “What we don’t see can hurt us: Dataset bias and its implications” Invited talk at NeurIPS workshop: Shared Visual Representations in Human and Machine Intelligence.
- 2021 “Disposing the Disposable Assignment: Open Pedagogies for Learning” Teaching Vision Satellite Event, Virtual Vision Sciences Society Meeting May 21-26.

- 2021 “Revealing the Cortical Transformations of Real-World Scenes using Dynamic Electrode-to-Image (DETI) Mapping.” (w/ B.C. Hansen & D.F. Field). Virtual Vision Sciences Society Meeting May 21-26.
- 2021 “The Role of Recurrence in Visual Scene Categorization”. (w/ J. Siegart & W. Zhou) Maine Biological and Medical Sciences Symposium, April 28-30.
- 2020 “Visual and Semantic Similarity Contribute to the Limits of Scene Decodability in EEG.” (w/J. Self). Neuromatch (virtual conference May 25-27).
- 2019 “The Role of Recurrent Processing in Visual Scene Categorization” (w/ J. Siegart, W. Zhou, E. Lam, M. Machoko). Meeting of the Vision Sciences Society, May 17-22, St. Pete Beach, Florida.
- 2018 “From Pixels to Scene Categories: Unique and Early Contributions of Functional and Visual Features” (w/ B.C. Hansen). Computational Cognitive Neuroscience, September 5-8, Philadelphia, PA.
- 2017 “Scene Category Structure Reflects Lived Experience” Meeting of the Psychonomics Society, November 9-12, Vancouver, BC. (Invited talk at Beyond the Lab: Using Big Data to Discover Principles of Cognition).
- 2017 “Measuring the Efficiency of Contextual Knowledge” Meeting of the Vision Sciences Society, May 19-24, St. Pete Beach, Florida.
- 2017 “Convolutional neural networks best predict representational dissimilarity in scene-selective cortex: comparing computational, object, and functional models” w/ I. Groen, C. Baldassano, D. Beck, L. Fei-Fei & C. Baker. Meeting of the Vision Sciences Society, May 19-24, St. Pete Beach, Florida.
- 2016 “Comparing computational, object, and functional models of scene representation in the human brain”. ” w/ I. Groen, C. Baldassano, D. Beck, L. Fei-Fei & C. Baker. Meeting of the Society for Neuroscience, November 12-16, San Diego, California.
- 2016 “What do convolutional neural networks know about object categories” . Meeting of the Psychonomics Society, November 17-20, Boston, Massachusetts.
- 2015 “How Many Objects Does it Take to Understand a Scene?” Meeting of the Psychonomics Society, November 19-22, Chicago IL.
- 2015 “Functions Provide a Fundamental Categorization Principle for Scenes” w/ Baldassano, C., Esteva, A., Beck, D.M., & L. Fei-Fei. Meeting of the Vision Sciences Society, May 15-20, St. Pete Beach, Florida.
- 2015 “Category Boundaries and Typicality Warp the Neural Representation Space of Real-World Object Categories” w/ Iordan, M.C., Beck, D.M., & L. Fei-Fei. Meeting of the Vision Sciences Society, May 15-20, St. Pete Beach, Florida.
- 2014 “Scene Categories Reflect Affordances” w/ Baldassano, C., Esteva, A., Beck, D.M., & L. Fei-Fei. Meeting of the Psychonomics Society, November 20-23, Long Beach, California.
- 2014 “Cohesion and Distinctiveness in Human Visual Cortex Favor Basic Level Representations. w/ Iordan, M.C., Beck, D.M., & L. Fei-Fei. Meeting of the Society for Neuroscience, November 15-19, Washington D.C.
- 2014 “Human estimates of object frequency are frequently over-estimated” Vision Sciences Society, May 16-21, St. Pete Beach, Florida.
- 2013 “Discovering mental representations of complex natural scenes.” Vision Sciences Society, w/ Botros, A., Beck, D.M., & L. Fei-Fei, May 10-15, Naples, Florida.
- 2013 “Typicality sharpens object representations in object-selective cortex.” Vision Sciences Society, w/ Iordan, M.C., Beck, D.M., & L. Fei-Fei. May 10-15, Naples, Florida.

- 2012 “Automatic basic-level object and scene categorization.” Object Perception Attention and Memory (OPAM), w/ L. Fei-Fei. November 15, Minneapolis, MN.
- 2012 “Neural Representations of Object Categories at Multiple Taxonomic Levels.” Vision Sciences Society, w/ Iordan, M.C., Beck, D.M. & L. Fei-Fei. May 11-16, Naples Florida.
- 2011 “Reconsidering Yarbus: Pattern Classification Cannot Predict Observer’s Task from Scan Paths.” Vision Sciences Society, w/ Liu, T., & Wolfe, J.M. May 6-11, Naples Florida.
- 2009 “Natural scene categorization by global scene properties: Evidence from patterns of fMRI activity”. Vision Sciences Society, w/ Park, S., Brady, T., & Oliva, A. May 8-13, Naples Florida.
- 2008 “High-level Aftereffects to Natural Scenes.” Vision Sciences Society, w/ A. Oliva, May 9-14, Naples Florida.
- 2006 “Natural Scene Categorization from Conjunctions of Ecological Global Properties.” Cognitive Science Society, w/ A. Oliva, July 26-29, Vancouver, B.C.
- 2006 “From zero to gist in 200msec: the time course of scene recognition.” Scene Understanding Symposium (SUNS), w/ A. Oliva, February 17, Cambridge Massachusetts.

Posters

- 2022 “Deep convolutional neural networks fail to classify images ‘in the wild’”. (w/ J.A. Hart). Poster at Computational Cognitive Neuroscience August 25-28, San Francisco.
- 2022 “Uncovering the Spatiotemporal Dynamics of Goal-driven Efficient Coding with a Brain-supervised Sparse coding Network”. (W/ B.C Hansen, I. Gephart, V. Gobo, & D. Field. Poster at Computational Cognitive Neuroscience August 25-28, San Francisco.
- 2022 “You know the situation if dangerous within 100 ms: Neural signatures of road hazard detection” (w/ J.A. Hart, C. McGlashan, & B. Wolfe) Poster at Vision Sciences Society Meeting May 13-18.
- 2022 “How do behavioral goals shape the spatiotemporal evolution of the sparse code for scenes?” (w/ B.C. Hansen, D.J. Field, I.S.H. Gephart, & V.W. Gobo) Poster accepted as Vision Sciences Society Meeting May 13-18.
- 2021 “Neural Correlates of Efficient Coding in Visual Scenes”. (w/ K. Leeke, B.C. Hansen & D.F. Field). Virtual Vision Sciences Society Meeting May 21-26.
- 2021 “Sampling Human Visual Experience through Text and Media Messages” (w/ J. Hart). Virtual Vision Sciences Society Meeting May 21-26.
- 2020 “A geometric state-space framework reveals evoked potential topography of the visual field” (w/ B.C. Hansen & D. Field). Vision Sciences Society, June 19-24 (virtual).
- 2019 “Measuring the Information Content of Visually-Evoked Neuroelectric Activity” (w/ D. Field & B.C. Hansen). Vision Sciences Society, May 17-22, St. Pete Beach, Florida.
- 2019 “Task demands flexibly change the dynamics of feature use during scene processing (w/ B.C. Hansen) Vision Sciences Society, May 17-22, St. Pete Beach, Florida.

- 2019 “Diagnostic Objects Contribute to Late—But Not Early—Visual Scene Processing” (w/ J. Self, J. Siegart, M. Machoko, & E. Lam) Vision Sciences Society, May 17-22, St. Pete Beach, Florida.
- 2018 “What Steady-State Visual Evoked Potentials (SSVEP) Tell Us About Early Visual Representation of Natural Scenes” (w/ D. Field & B. Hansen). Meeting of the Optical Society of America Fall Vision Meeting, Reno NV, September 21-23.
- 2018 “Mapping the Neuroelectric State Space Geometry of Natural Scenes” w/ B. Hansen, D. Field, C. Olson, V. Miskovic, & L.J. Rhodes. Vision Sciences Society, May 16-23, St. Pete Beach, Florida.
- 2017 “Visual, Functional, and Semantic Contributions to Scene Categorization” w/ B. Hansen. Vision Sciences Society, May 17-24, St. Pete Beach, Florida.
- 2017 “The rapid perception of functional scene features” Concepts, Actions, and Categories (CAOS), Rovereto, Italy.
- 2016 “Decoding the informative value of early and late visual evoked potentials in scene categorization” w/ B. Hansen, C. Walsh, R. Goldberg & Y. Zhang. Vision Sciences Society, May 13-18, St. Pete Beach, Florida.
- 2015 “Typicality Sharpens Object Representations in Object Selective Cortex” Cognitive Neuroscience Society w/ M.C. Iordan, D.M. Beck & L. Fei-Fei. March 28-31, San Francisco, California.
- 2014 “Scene Category Prototypes: Reconstruction of Internal Templates and Prediction of Rapid Classification”. Association for Psychological Science, w/ A. Botros, D.M. Beck & L. Fei-Fei, May 22-26, San Francisco, California.
- 2013 “Oddness at a glance: unraveling the time course of typical and atypical scene perception,” Vision Sciences Society, w/ Botros, A., & L. Fei-Fei, May 10-15, Naples, Florida.
- 2013 “Internal representations of real-world scene categories.” Cognitive Neuroscience Society, w/ Botros, A., Beck, D.M., & L. Fei-Fei. April 5-8, San Francisco, California.
- 2013 “Real-world objects acquire basic-level advantage in occipito-temporal cortex.” Cognitive Neuroscience Society, w/ Iordan, M.C., Beck, D.M., & L. Fei-Fei. April 5-8, San Francisco, California.
- 2012 “Scene categorization at large visual eccentricities.” European Conference of Visual Perception, w/ Boucart, M., Thibaut, M., & Szaffarczyk, S. September 2-6, Sardinia Italy.
- 2012 “A large-scale taxonomy of real-world scenes.” Vision Sciences Society, w/ L. Fei-Fei, May 11-16, Naples Florida.
- 2012 “The Relative Effectiveness of Different vs. Shared Mask Features on the Processing of Scene Gist.” Vision Sciences Society, w/ Witherspoon, R., & Castelhana, M., May 11-16, Naples Florida.
- 2011 “Depth and Size Information Reduce Effective Set Size for Visual Search in Real-World Scenes.” Vision Sciences Society, w/ Sherman, A., & Wolfe, J.M., May 6-11, Naples Florida.
- 2010 “What’s behind the box? Playing Shannon’s guessing game with scenes.” Vision Sciences Society, w/ Wolfe, J.M., Oliva, A., & Torralba, A., May 7-12, Naples Florida.
- 2009 “Rapid Scene Understanding: Evidence of Global Property Processing before Basic-level Categorization.” Vision Sciences Society, w/ Park, S., & Oliva., May 8-13,

- Naples Florida.
- 2008 “Calculating Scene Context: What 47,928 Objects can tell us about scene categories.” Scene Understanding Symposium (SUNS), w/ Oliva, A., & Torralba, T., February 1, Cambridge Massachusetts.
- 2007 “High-level aftereffects to natural scenes: adapting to the building blocks of gist.” Scene Understanding Symposium (SUNS), w/ A. Oliva., February 1-2, 2007, Cambridge Massachusetts.
- 2006 “Seeing the {Camouflage+Closed+Natural=Forest} for the trees: Rapid scene categorization can be mediated by Conjunctions of Global Scene Properties.” Vision Sciences Society, w/ A. Oliva, May 5-10, Sarasota Florida.
- 2006 “Constructing Depth Information in Briefly Presented Scenes.” Vision Sciences Society, w/ Konkle, T., McDaniel, E., & Oliva, A., May 5-10, Sarasota Florida.
- 2006 “Not all scene categories are created equal: the role of object and layout diagnosticity in scene gist understanding.” Vision Sciences Society, w/ Oliva, A., Konkle, T., & Torralba, A., May 5-10, Sarasota Florida.
- 2005 “Better to run than hide – time course of naturalistic scene decisions.” Sciences Society, w/ A. Oliva, May 6-11, Sarasota Florida.
- 2004 “Perceiving visual complexity...Objects do not matter.” Object Perception Attention and Memory (OPAM), w/ A. Oliva, November 18, Minneapolis, MN.

INVITED TALKS

- 2021-10 University of Illinois, Urbana-Champaign, Psychology Department Colloquium (virtual due to Covid-19)
- 2021-10 Carlton University Psychology Colloquium (virtual due to Covid-19)
- 2021-03 Harvard Medical School / Brigham & Women’s Hospital (virtual due to Covid-19)
- 2021-02 Adobe, Inc. (virtual due to Covid-19)
- 2021-01 Goethe University Frankfurt (virtual due to Covid-19)
- 2020-10 Princeton University, Cognitive Neuroscience Series (virtual due to Covid-19)
- 2020-09 Harvard University, Cognition Brain & Behavior Seminar (virtual due to Covid-19)
- 2020-04 University of Toronto, Department of Psychology (virtual due to Covid-19)
- 2019-02 Bowdoin College, Biology Department Seminar
- 2017-12 University of Amsterdam, Neuroscience Department Colloquium
- 2017-08 Cornell University, Psychology Department Colloquium
- 2014-10 University of Illinois, Urbana-Champaign, Psychology Department
- 2014-04 University of Pennsylvania, Department of Psychology
- 2014-04 University of Delaware, Department of Psychology
- 2014-04 George Washington University, Department of Psychology
- 2014-04 Johns Hopkins University, Department of Cognitive Science
- 2014-04 National Institute of Mental Health
- 2014-03 University of Southern California, Department of Neuroscience
- 2014-03 University of California at Riverside, Department of Psychology
- 2013-08 University of California Berkeley, Bay Area Vision Research Meeting
- 2012-02 University of California Santa Cruz, Department of Psychology

2011-02 Stanford University, Department of Computer Science
2010-10 Smith-Kettlewell Eye Institute
2009-09 Harvard Medical School / Brigham & Women's Hospital
2006-03 Harvard University (w/ A. Torralba)
2005-12 Harvard Medical School / Brigham & Women's Hospital

TEACHING

Bates College, Instruction

Computational Neuroscience with Lab (2017, 2018, 2019, 2020, 2022)
Introduction to Neuroscience (2018, 2019, 2022)
Capstone Seminar in Human Cognitive Neuroscience (2018, 2020)
Neuroethics and Society (2018, 2020, 2021)
Neural Codes: The Language of Thought (2019, 2022)
Statistical Methods (2019)
Neural Networks (2021)

Minerva Schools at KGI, Instructor

Formal Analysis (2015-2016)

Minerva Schools at KGI, Design

CS110: Computation: Solving Problems with Algorithms
SS110: Perception, Cognition, & Reality

Tufts University, Experimental College, Sole Instructor/Course Design

Introduction to Neuroscience, Neuroethics, and the Future (Fall, 2009)

Massachusetts Institute of Technology, Teaching Assistant

Cognitive Science (Spring, 2009)
Laboratory in Cognitive Science (Fall, 2006)
Introduction to Psychology (Spring, 2006)

Outreach

2020-2023 “Big Data Summer School”: One-week course for advanced undergraduates
and early graduate students on the basics of scientific computing.
2011 “Understanding Science in the Media,” HSSP: 8-week course for high school

- students
- 2009 “Big Blunders of Scientific Ethics in Cog-Neuroscience,” Spark! One-day seminar for high school students
- 2008 “Neuroscience for Future Presidents,” Splash! One-day seminar for high school students

THESIS MENTORSHIP

Thesis projects mentored (* denotes Honors)

- 2022-2023 Mariam Josyula. “Comparing Economic and Racial Biases in Humans and Deep Convolutional Neural Networks”
- 2022-2023 Ezra Parkhill. “What Makes a Scene Viewpoint Canonical?”
- 2022 Cammie Lavoie. “Recommendations for Lead Abatement in the Lewiston-Auburn Community”
- 2021-2022 Peter Riley. “Assessing the Neural Correlates of Visual and Semantic Scene Information”
- 2021-2022 Devanshi Trivedi. “The Role of Visual and Semantic Information in Boundary Extension”
- 2021-2022 Amina Mohamed. “Unbiasing Deep Convolutional Neural Networks”
- 2020-2021 Jamie Siegart. “Comparing Abstract Visual Representations in Humans and Deep Convolutional Neural Networks”
- 2020 Natalie Brewer. “Evaluating Decoding Accuracies of Categorization through a Three-tier Taxonomic Hierarchy”
- 2020 Alexis Fifield. “Examining Western Biases in Deep Convolutional Neural Networks”
- 2020 Will Davis. “Learning Invariant Object Representations in Deep Convolutional Neural Networks”
- 2020 Leo Crossman. “Exploring the Manifold of Visual Images”
- 2019-2020 * Alyssa Rohan. “Assessing Task-Dependent Flexibility and the Temporal Dynamics of Object Categorization”.
- 2019-2020 Kathryn Leeke. “Efficient Coding: The Neural Compression of Visual Information”.
- 2019-2020 Sean Paul Clark. “Spatiotemporal Dynamics of Visual Scene Categorization”.
- 2018-2019 * Wanyi Lu. “Depth of Processing of Visual Scenes Not Reported During Attentional Blink”.
- 2018-2019 Priyanka Takle. “The Role of Functional- and Object- Based Processing of Early Scene Representations”
- 2018 Emily Lufburrow. “The Efficacy of Acupuncture Treatment on Life Quality Outcomes of Cancer Patients”
- 2017-2018 * Julie S. Self. “The Role of Diagnostic Objects in the Temporal Dynamics of Visual Scene Categorization”
- 2017-2018 Katherine Hartnett. “Wait...Did You See That? Exploring the Effects of Predictability on Scene Perception”
- 2017-2018 Hanna DeBruyn. “Does Scene Category Information Persist After Backwards Masking?”

Honors Program Panelist

- 2019-2020 Lily Patterson “Understanding the Alerting-Congruency Interaction in the Attention Network Test (ANT)”
- 2018-2019 Alexa Harrison “Temporal Negative Priming: Visual and Auditory”
- 2018-2019 Xinyuan Zhang “Learning Induces Methylation to Encode, Consolidate, and Recall Memory in the Hippocampus: Are Tet and Tcf4 Candidates for Intellect?”
- 2017-2018 Katrina Muñoz. “ECT and DBS: Depression Treatments and their Perceived Threat to Personal Identity”
- 2017-2018 Gwen Savino. “Depth of Processing in Object Substitution Masking”

OTHER MENTORSHIP

- 2022 Mariam Josyula, Annie Li, Ron Mezile, Brett Schmidt, Wentao Si, Joaquin Torres & Eliana Weissmann. “Creating the Visual Experience Database”.
- 2022 Ayah Ghazi. Independent study. “Dental diagnosis using AI”
- 2021-2022 Wentao Si, Edmund Zuis, Samantha Simmons, Nick Delamater, Olivia Cuneo. Work in progress: “Geographic, socioeconomic, and racial biases in Airbnb images”
- 2020-2021 Neeshi Hullavarad, Peter Riley, Abraham Mieses & Munashe Machoko, Work in progress: “Privacy protections for first-person video”.
- 2020-2021 William Davis, Work in progress: “Computer vision techniques for detecting rare objects.”
- 2019 Devanshi Trivedi, Jhansi Kolli. “Revealing Internal Scene Category Representations”
- 2019- Caitlyn McGlashan. Work in progress: “Time Course of Road Hazard Detection”
- 2018 Priyanka Takle. “Meta analysis on rapid serial visual presentation over time”
- 2018- Jamie Siegart, Enton Lam, Munashe Machoko, Wuyue Zhou. Work in progress: “Similarities and Differences Between Humans and Deep Convolutional Neural Networks”
- 2016 Khang Duong, Raymundo Gonzalez Leal, Huy Nguyen: Undergraduate volunteers. Project: “Revealing Internal Scene Category Representations”.
- 2012 – 2013 Abraham Botros: Full-time research assistant. Co-authoring projects: “Obtaining Scene Category Prototypes from Random Image Features”; “Oddness at a glance....”
- 2010 Tommy Liu: Research Science Institute Student. Co-authored project: “Reconsidering Yarbus: Pattern Classification Cannot Predict Observer’s Task from Scan Paths”
- 2010 Kimberly Lamarre: Project Success Student. Aided with project: “Global Image Properties Do Not Guide Visual Search.”

AD-HOC REVIEWING (JOURNALS)

Nature Human Behaviour; Nature Communications; Proceedings of the National Academy of Sciences; Scientific Reports; Psychological Science; Journal of Neuroscience; Cerebral Cortex; NeuroImage; Attention, Perception & Psychophysics; Cognitive Research: Principles and Implications; Journal of Experimental Psychology: General; Journal of Experimental Psychology: Human Perception and Performance; Journal of Experimental Psychology: Learning, Memory & Cognition; PLoS One; PLoS Computational Biology; Behavioral Research Methods; Canadian Journal of Experimental Psychology; Frontiers of Perception Science; Gestalt Theory Journal; Journal of Neurophysiology; Journal of Vision; Perception; Psychonomic Bulletin and Review; Psychophysiology; Quarterly Journal of Experimental Psychology; Visual Cognition; Vision Research; Proceedings of the Cognitive Science Society; European Cognitive Science

AD-HOC REVIEWING (GRANTING AGENCIES)

National Science Foundation (NSF); UK SBS; Human Frontiers

EDITORIAL BOARD

2021- Associate Editor, *Attention Perception and Psychophysics*
2015-2020 Consulting Editor, *Attention Perception and Psychophysics*

DEPARTMENT AND UNIVERSITY SERVICE

2021- Gender and Sexuality Studies Program Committee
2021-2022 Search Committee, Director of Counselling and Psychological Services
2021- Faculty Liaison, Men's Baseball
2020- Student Research Committee
2019- Digital and Computational Studies Program Committee
2019- Student Conduct Pool
2018-2021 Student Affairs Committee
2017-2018 STEM Inclusive Faculty Search
2017- Neuroscience Program Committee
2015-2016 Faculty Research Liaison, Minerva Schools at KGI
2010-2011 Coordinator, Visual Attention Lab Seminar Series, Harvard Medical School
2007-2008 Coordinator, MIT Cog Lunch

PROFESSIONAL SERVICE

2022 Abstract reviewer, Cognitive Computational Neuroscience meeting
2022 External examiner for PhD thesis of Matt Anderson, University of Southampton
2021 External examiner for PhD thesis of Maverick Smith, Kansas State University
2021 Abstract reviewer, Computational and Systems Neuroscience (COSYNE)
2020- Abstract reviewer, Vision Sciences Society

PROFESSIONAL MEMBERSHIPS

| | |
|--------------|---------------------------------------|
| 2003-present | Vision Sciences Society |
| 2009-present | Association for Psychological Science |
| 2006-present | Cognitive Sciences Society |
| 2008-present | Fellow, Psychonomic Society |
| 2009 | Neuroethics Society |
| 2013-present | Cognitive Neuroscience Society |