tyler bonnen

University of California, Berkeley
Electrical Engineering and Computer Science
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EDUCATION

2023 PhD, Cognitive Neuroscience, Stanford University
2016 Research Fellow, Department of Brain and Cognitive Sciences, MIT
2013 BA, Chemistry and Comparative Literature Columbia University
2009 AA, Chemical Engineering, Miami Dade Community College

APPOINTMENTS

2023 Postdoctoral Research Fellow, Berkeley AI research (BAIR) labs
2021 Affiliate, Center for Open and REproducible Science (CORES), Stanford, CA
2019 Envoy, Wonderfest, San Francisco, CA
2018 Member, Stanford's Center For Mind, Brain, Computation, and Technology, Stanford, CA
2016 Trainee, Center for Brains Minds and Machines Summer Course, Woods Hole, MA
2015 Graduate Student Affiliate, Center Brains Minds and Machines, MIT
2014 Research Scientist, Max Planck Institute's Neuroanatomy and Connectivity Group, Leipzig

AWARDS & HONORS

2023 University of California President's Postdoctoral Fellowship Program (PPFP)
2021 NIH Blueprint D-SPAN Award, F99/K00
2020 Diversifying Academia, Recruiting Excellence (DARE) Fellowship, Stanford University
2016 National Science Foundation Graduate Research Fellowship
2009 Dean's List, Columbia University
2009 Program for Academic Leadership and Success Scholarship, Columbia University
2007 Tools for Success (STEM) Scholarship, Miami Dade Community College
2007 Dean's List, Miami Dade Community College

PUBLICATIONS

Bonnen, T., & Eldridge, M. A. (2023). Inconsistencies between human and macaque lesion data can be resolved with a stimulus-computable model of the ventral visual stream. *eLife* (*in press)*

Bonnen, T., Yamins, D. L.K., & Wagner, A. D. (2021). When the ventral visual stream is not enough: A deep learning account of medial temporal lobe involvement in perception. Neuron, 109(17), 2755-2766.

Oligschläger, S., Huntenburg, J. M., Golchert, J., Lauckner, M. E., **Bonnen, T**., & Margulies, D. S. (2017). Gradients of connectivity distance are anchored in primary cortex. *Brain Structure and Function*, *222*(5), 2173-2182.

Gorgolewski, K. J., Mendes, N., Wilfling, D., Wladimirow, E., Gauthier, C. J., **Bonnen, T.**, ... & Smallwood, J. (2015). A high resolution 7-Tesla resting-state fMRI test-retest dataset with cognitive and physiological measures. *Scientific data*, *2*(1)

Conrad, B. R., Tosado, J., Dutton, G., Dougherty, D. B., Jin, W., **Bonnen, T.**, ... & Robey, S. W. (2009). C_{60} cluster formation at interfaces with pentacene thin-film phases. *Applied Physics Letters*, *95*(21), 303.

INVITED/DEPARTMENTAL TALKS

2023 *"Seeing fast and slow; isolating the contributions of ventral and medial temporal cortex in visual object perception"* Johns Hopkins Early Career Colloquium

2022 *Disentangling MTL from VVS contributions to visual object perception,* Kanwisher Lab, Massachusetts Institute of Technology (MIT)

2022 *Medial temporal lobe contributions to visual object perception,* Vision Journal Club, New York University

2022 *Understanding memory-related behaviors: From psychological constructs to function approximation,* Princeton Neuroscience Institute

2021 *"Is the medial temporal lobe involved in perception?" Situating lesion and electrophysiological data within a deep learning framework*. Johns Hopkins Early Career Colloquium

2021 *Using biologically plausible computational models to formalize MTL involvement in perception.* Preston Lab, UT Austin, Center for Learning and Memory

2021 *Biologically plausible computational models of perception, formalizing theories of medial temporal lobe function, and routes to emotion-related research—oh my!* Dunsmoor Lab, UT Austin

2021 *When the ventral visual stream is not enough: A deep learning account of medial temporal lobe involvement in perception.* Neuro area weekly seminar, Stanford University

2020 *Identifying neuroanatomical substrates that enable humans to outperform computational models of vision.* Facebook Artificial Intelligence Research (FAIR)

2020 *Formalizing the involvement of the medial temporal lobe in perception: From psychological constructs to function approximation.* Saxelab, Massachusetts Institute of Technology (MIT)

2020 *Is the medial temporal lobe involved in perception? Formalizing perceptual demands in concurrent visual discrimination tasks.* National Institute of Mental Health, Bethesda, MD

2019 *Traces: On Lines, Memory, and Threads.* Materia, Division of Literatures, Cultures, and Languages Focal Unit. Stanford University, Co-presented with Robalino, M.G.

2019 *How does an experience become a memory? Information processing in the brain, from perceptual encoding to conscious recollection.* Wonderfest, San Francisco, CA

2019 *Mnemonic Representations: from taxonomies and constructs to function approximation.* Interdisciplinary workshop Locating Representations in the Brain, Stanford University

2019 *Formalizing involvement of the Medial Temporal Lobe in perceptual tasks: A meta-analytic, computational, and behavioral approach.* Neuro area weekly seminar, Stanford University

2016 *Social structure learning: Relating formal models of learning to vicarious fear conditioning.* Affective area seminar, Stanford University

CONFERENCE PRESENTATIONS

2022 *Complementary Learning Systems supporting 3D object perception*, Shared Visual Representations in Humans and Machines (SVRHM), NeurIPS

2022 *Neural and behavioral constraints on human visual reasoning; a case study from 3D object perception,* Beyond Bayes: Paths Towards Universal Reasoning Systems, ICML

2021 *When the ventral visual stream is not enough: A deep learning account of medial temporal lobe involvement in perception.* Black in Neuro Conference, Virtual

2019 *A stimulus-computable model of inferior temporal cortex predicts perceptual demands on perirhinal cortex.* Bay Area Memory Meeting, San Jose State University, CA

2019 *Disambiguating the role of perirhinal cortex in perception: A biologically plausible computational approach*. Nanosymposium talk at the Society for Neuroscience (SfN), Chicago, IL

2013 *'Speechless' Terror: the Neural and Social Correlates of Trauma, Language, and Sensation.* Minding the Body: Dualism and Its Discontents, English Student Association, Graduate Student Conference, CUNY

POSTER PRESENTATIONS

2022 Bonnen, T., Yamins, D, Wagner, A. *The medial temporal lobe enables visual perception not possible 'at a glance'* Cognitive Computational Neuroscience (CCN), San Francisco

2021 Bonnen, T., Yamins, D, Wagner, A. *Formalizing Medial Temporal Lobe involvement in perception: From psychological constructs to function approximation.* Cognitive Neuroscience Society (CNS), Virtual

2020 Wang, S., Jiang, J., Bonnen, T., Iyer, C., Wagner, A. *Similarity structure of semantic knowledge modulates variability in episodic memory behavior through cortical-hippocampal interactions.* Cognitive Neuroscience Society (CNS), Virtual

2020 Bonnen, T., Yamins, D, Wagner, A. *Formalizing a Perceptual-Mnemonic Theory of the Medial Temporal Lobe*. Computational and Systems Neuroscience (Cosyne), Denver, CO

2019 Bonnen, T., Yamins, D, Wagner, A. *Formalizing a Perceptual-Mnemonic Theory of the Medial Temporal Lobe*. Cognitive Computational Neuroscience (CCN), Berlin, Germany

2018 Bonnen, T., Yamins, D., Wagner, A. *A stimulus-computable model of inferior temporal cortex predicts perceptual demands on perirhinal cortex.* Bay Area Memory Meeting, San Jose State University, CA

RESEARCH EXPERIENCE

2016 PhD Candidate, co-advised by Anthony Wagner and Daniel Yamins, Stanford University
Biologically plausible computational models of medial temporal lobe involvement in perception

2014 Research Fellow with Rebecca Saxe: Department of Brain and Cognitive Science, MIT
Multivariate analyses with human neuroimaging data

2014 Research Scientist with Daniel Marguilies, Max Planck Institute's Neuroanatomy and Connectivity Group
Identifying principles of cortical organization with a large scale resting state data

2010 Research Aid in the Leadership Computing Facility Division with John Hammond, Argonne National Lab, IL
Modeling the intercalation of lithium ions onto graphene using DFT computational methods

2008 Summer Undergraduate Research Fellow with John Doerty, NIST, Gaithersburg, MD
Methods for device fabrication and characterization of a prototypical organic donor-acceptor interface.

2004 Clinical Massage Therapist with Tiffany Fields, Touch Research Institute, Miami, FL
Cataloging physiological benefits of touch in preterm infants, depressed pregnant mothers, AIDS patients

TEACHING EXPERIENCE

2020 Teaching Assistant, *Models and Mechanisms of Memory*, Stanford University

2020 Teaching Assistant, *Statistical Methods for Behavioral and Social Science*, Stanford University

2019 Instructor, Inspirit AI in Delhi, Mumbai, and Dubai

2019 Teaching Assistant, *Introduction to Statistical Methods*, Stanford University

2017 Instructor, Center For Brain Minds and Machines Summer School, MIT

2012 Teacher's Assistant, Organic Chemistry Laboratory, Columbia University

2012 Curriculum Consultant, The Center for Intersectionality, Columbia University

2010 Student Intern & Coordinator, Men's Peer Educator, Columbia University

2004 Pedagogical Instructor, Humana People to People, Angola & South Africa

SERVICE TO THE PROFESSION

2021 Reviewer: Cosyne, Cerebral Cortex, Cognitive Computational Neuroscience, Neuropsychologia, Shared Visual Representations in Human and Machine Intelligence (SVRHM) NeurIPS Workshop

SERVICE TO THE INSTITUTION

2021 Wu Tsai Neuroscience Institute Diversity Inclusion Belonging Equity and Justice (DIBEJ) Committee

2020 Mind, Brain, Computation, and Technology Seminar Series, Organizer

2020 BELONG (BIPOC Emerging Leaders of the Next Generation), Co-founder and Organizer

2018 Stanford University Building Naming Committee, Member
2018 Men and Masculinities Project, a program within the Women's Community Center, Organizer
2016 Frisem (Neuroscience/Cognitive Areas) Seminar Series, Organizer
2017 Psychology Diversity Committee, Member
2016 Affective Seminar Series, Organizer

PUBLIC WRITING

2021 Stanford Daily, Developing a Transformative Justice Response to Racism on Campus
2020 Stanford Daily, Failure to protect subcontracted workers could have disastrous public health consequences
2013 Choice Words Blog, Unite for Reproductive and Gender Equity, Masculinity and Care

MEDIA

2021 Stanford HAI, How Artificial Neural Networks Help Us Understand Neural Networks in the Human Brain

MENTORSHIP

2021 Chris Iyer: Mentorship for undergraduate thesis work at Stanford <csiyer@stanford.edu>
2020 Anmol Dhaliwal: High school scientific mentorship; transition to university <v07135anmol@dpsrkp.net>
2019 Ayesha Nadiadwala: Transition to graduate school <anadiadwala@utexas.edu>
2018 Kylo Littlejohn: Transition to four-year university and graduate school <kl3092@columbia.edu>
2017 Mina Caraccio: Scientific mentorship during highschool <mina.caraccio@yale.edu>

REFERENCES

Dr. Anthony Wagner, Stanford University <awagner@stanford.edu>
Dr. Daniel Yamins, Stanford University <yamins@stanford.edu>
Dr. Jay McClellend, Stanford University <jlmcc@stanford.edu>
Dr. Morgan Barense, University of Toronto <morgan.barense@utoronto.ca>