

Catrina McKenzie Hacker

EDUCATION

University of Pennsylvania, PhD in neuroscience

Present

University of Southern California, Neuroscience B.S. with honors, *Summa cum laude* **2015 – 2019**

PUBLICATIONS

Primary Research Articles

Hacker, C.M., Biederman, I., Zhu, T., Nelken, M. & Meschke, E.X. (2022). The sizable difficulty in matching unfamiliar faces differing only moderately in orientation in depth is a function of image dissimilarity. *Vision Research*. doi: 10.1016/j.visres.2021.09.005.

Hacker, C.M., Meschke, E.X. & Biederman, I. (2019). A Face in a (Temporal) Crowd. *Vision Research*, doi: 10.1016/j.visres.2018.02.007.

Reviews

Biederman, I., Shilowich, B.E., Herald, S.B., Margalit, E., Maarek, R., Meschke, E.X. & **Hacker, C.M.** (2018). The Cognitive Neuroscience of Person Identification. *Neuropsychologia*, 116, 205-214. doi: 10.1016/j.neuropsychologia.2018.01.036.

Preprints

Hacker, C.M. & Biederman, I. (2019). The proficiency for distinguishing faces is independent of the proficiency for remembering them. *PysArxiv*. doi: 10.31234/osf.io/9bwct.

Hacker, C.M. & Biederman, I. (2019). The invariance of recognition to the stretching of faces is not explained by familiarity or warping to an average face. *PsyArxiv*. doi: 10.31234/osf.io/e5hgx.

Other

Hacker, C.M. & Rust, N.C. (2022). Ritalin as a causal perturbation. *Trends in Cognitive Sciences, Research Spotlight*. doi: 10.1016/j.tics.2022.04.002.

POSTERS AND PRESENTATIONS

Talks

Hacker, C.M., Jannuzi, B.G.L., Meyer, T., Hay, M.L. & Rust, N.C. (2022) Worse remembering of a dog when viewed in a sequence of dogs is dominated by changes in memory mechanisms as opposed to sensory adaptation. Talk presented at the annual meeting of the Vision Sciences Society, St. Petersburg Beach, FL. May.

Posters Presented

Hacker, C.M., Jannuzi, B.G.L., Meyer, T., Hay, M.L. & Rust, N.C. (2022) Evidence that the extrinsic effects on memorability are computed in inferotemporal cortex and inherited by the hippocampus. Poster presented at the annual meeting of the Society for Neuroscience, San Diego, CA. November.

Hacker, C.M. & Biederman, I. (2019). The capacity for face perception is independent of the capacity for face memory. Poster presented at the annual meeting of the Vision Sciences Society, St. Petersburg Beach, FL. May. doi: 10.1167/19.10.139a.

- Hacker, C.M.**, Meschke, E.X. & Biederman, I. (2018). Recognition of Stretched Faces. Poster presented at the annual meeting of the Vision Sciences Society, St. Petersburg Beach, FL. May. doi: 10.1167/18.10.160.
- Meschke, E.X.*, **Hacker, C.M.***, Juarez, J.J., Maarek, R.S. & Biederman, I. (2017). Detecting Unspecified Familiar Faces. Poster presented at the annual meeting of the Vision Sciences Society, St. Petersburg Beach, FL. May. doi: 10.1167/17.10.1027.

Posters Co-Authored

- Bohn, S., **Hacker, C.M.**, Jannuzi, B.G.L., Meyer, T., Hay, M.L. & Rust, N.C. (2022) Disambiguating familiarity from visual modulation: A role for the hippocampus in recognition memory. Poster presented at the annual meeting of the Society for Neuroscience, San Diego, CA. November.
- Jannuzi, B.G.L., **Hacker, C.M.**, Meyer, T., Hay, M.L. & Rust, N.C. (2022) Neural analogs of memory sharpening behavior emerge earlier in inferotemporal cortex than the hippocampus. Poster presented at the annual meeting of the Vision Sciences Society, St. Petersburg Beach, FL. May.
- Jannuzi, B.G.L., Meyer, T., Hay, M.L., **Hacker, C.M.** & Rust, N.C. (2021) The remarkable visual specificity of visual recognition memory behavior is shaped by representational sharpening, reflected in inferotemporal cortex. Poster presented at the annual meeting of the Society for Neuroscience, virtual. November.
- Biederman, I., Zhu, T., Nelken, M., Meschke, E.X. & **Hacker, C.M.** (2019). The cost of matching depth-rotated faces: A simple, additive function of image similarity. Poster presented at the annual meeting of the Vision Sciences Society, St. Petersburg Beach, FL. May. doi: 10.1167/19.10.136b.
- Meschke, E.X., **Hacker, C.M.** & Biederman, I. (2018). How Many Faces Can We Recognize? Poster presented at the annual meeting of the Vision Sciences Society, St. Petersburg Beach, FL. May. doi: 10.1167/18.10/158.
- Zhu, T., Nelken, M., **Hacker, C.M.**, Meschke, E.X. & Biederman, I. (2018). Matching Depth-Rotated Faces at Varying Degrees of Physical Similarity. Poster presented at the annual meeting of the Vision Sciences Society, St. Petersburg Beach, FL. May. doi: 10.1167/18.10.932.
- Biederman, I., Margalit, E., Maarek, R.S., Meschke, E.X., Shilowich, B.S., **Hacker, C. M.**, Juarez, J.J., Seamans, T. J. & Herald, S.B. (2017). What is the Nature of the Perceptual Deficit in Congenital Prosopagnosia? Poster presented at the annual meeting of the Vision Sciences Society, St. Petersburg Beach, FL. May. doi: 10.1167/17.10/619.

HONORS AND AWARDS

Jameson-Hurvich Travel Award, <i>Recipient</i>	2022
NSF Graduate Research Fellowship, <i>Honorable Mention</i>	2020
USC Discovery Scholar, <i>Distinction recipient, Prize finalist</i>	2019
Graduation distinction awarded to students who excel in the classroom while demonstrating the ability to create exceptional new scholarship.	
USC Neuroscience Outstanding Student of the Year Award	2019
Award given to USC's best neuroscience student with senior standing.	
Brian Phillip Rakusin Neuroscience Scholarship Award	2018
\$10,000 Scholarship awarded each year to the most outstanding sophomore or junior demonstrating exceptional achievements and aspirations in the field of Neuroscience.	

USC Provost's Undergraduate Research Fellowship, <i>Six-time Recipient</i>	2017 – 2019
Fellowship awarded to select undergraduates demonstrating excellent academic standing and engaged in research, total value of \$8,000 over six semesters.	
USC Dean's Scholar	2015 – 2019
Quarter tuition merit-based scholarship to the University of Southern California	
Phi Kappa Phi Academic Honor Society	2019
Phi Beta Kappa Academic Honor Society	2018
Nu Rho Psi National Honor Society in Neuroscience	2017

SERVICE

CNI +/- Seminar, <i>Organizer</i>	2022 – Present
Seminar for students and post docs of the Computational Neuroscience Initiative to informally present and get feedback about ongoing research.	
Penn Neuro Know, <i>Writer (2021-Present), Co-Editor (2022-Present)</i>	2021 – Present
Student-curated blog with posts about neuroscientific research written for the public.	
CORE II: The Electrical Language of Cells, <i>Recitation Leader</i>	2021 – 2022
Taught weekly recitations for first year graduate students to supplement lectures.	
GLIA, <i>Member (2019-Present), Co-Director (Starting fall 2022)</i>	2019 – Present
Coalition of neuroscience graduate students organizing outreach and professional development events. I have worked on the Neuroscience Public Lecture, Fuel for Successful Scientists, Returning Neuroscience Alumni, and Brains in Briefs committees. As co-director I will oversee the eight-member executive board and allocation of funding provided by Mahoney Institute for Neuroscience and mindCORE.	

RESEARCH EXPERIENCE

Visual Memory Lab, <i>Graduate Student, Advisor: Nicole C. Rust</i>	2019 – Present
Perform electrophysiological recordings and execute computational analyses to elucidate neural mechanisms of visual recognition memory.	
USC Image Understanding Lab, <i>Research Assistant, Advisor: Irving Biederman</i>	2016 – 2019
Design, execute and analyze psychophysical studies investigating nature and limits of human face recognition to develop neurocomputational accounts of face processing.	
Bottjer Songbird Lab, <i>Research Assistant, Advisor: Sarah W. Bottjer</i>	2018 – 2019
Assist in electrophysiological and optogenetic experiments in cortico-basal ganglia circuits of male zebra finches to explicate the neural circuitry involved in song learning and production.	