

Michael James Starrett Ambrose, Ph.D.

(stAIR-it AM-broh-z; he/him/his)

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Biological Sciences III (1428)
 University of California Irvine
 Neurobiology & Behavior
 Irvine, CA 92697-4550

EDUCATION

- 08/2018 – 05/2021 **University of Arizona**
 Ph.D. Psychology | Minor: Cognitive Science (May 14, 2021)
Advisor: Arne D. Ekstrom, Ph.D.
- 09/2015 – 07/2018 **University of California, Davis**
 M.A. Psychology (December 15, 2017)
Advisor: Arne D. Ekstrom, Ph.D.
- 08/2007 – 12/2011 **University of Wisconsin-Madison**
 B.A. Psychology (December 24, 2011)

ACADEMIC APPOINTMENTS

- 01/2022 – **University of California, Irvine**
 Postdoctoral Trainee, NIH NIA award T32AG073088
Program Directors: Joshua Grill, Ph.D. & Elizabeth Head, Ph.D.
- 07/2021 – **University of California, Irvine**
 Postdoctoral Scholar, Neurobiology & Behavior
Advisor: Elizabeth R. Chrastil, Ph.D.

PUBLICATIONS (citations: 595; *i-10*-index: 8; *h*-index: 9, source: Google Scholar)
*equal contributions** *add'l. equal contributions †* *mentored/supervised §*

Peer-Reviewed Journal Articles

- 2021 **Starrett, M. J.**, McAvan, A. S., Huffman, D. J., Stokes, J. D., Kyle, C. T., Smuda, D. N., Kolarik, B. S., Laczko, J., & Ekstrom, A. D. (2021). Landmarks: A solution for spatial navigation and memory experiments in virtual reality. *Behavior Research Methods*, 53(3), 1046-1059. <https://doi.org/10.3758/s13428-020-01481-6>
- Sheldon, A. D., Saad, E., Sahan, M. I., Meyering, E., **Starrett, M. J.**, LaRocque, J. J., Rose, N. S., & Postle, B. R. (2021). Attention biases competition for visual representation via enhancement of targets and inhibition of nontargets. *Journal of Cognitive Neuroscience*, 1-17. https://doi.org/10.1162/jocn_a_01672

- 2020 Hejtmanek, L., **Starrett, M. J.**, Ferrer, E., & Ekstrom, A. D. (2020). How much of what we learn in virtual reality transfers to real-world navigation? *Multisensory Research*, 1-25. Advance online publication. <https://doi.org/10.1163/22134808-20201445>
- 2019 **Starrett, M. J.**, Stokes, J. D., Huffman, D. J., Ferrer, E., & Ekstrom, A. D. (2019). Learning-dependent evolution of spatial representations in large-scale virtual environments. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 45(3), 497-514. <https://doi.org/10.1037/xlm0000597>
- 2018 Preciado, C. E. §, **Starrett, M. J.**, & Ekstrom, A. D. (2018). Assessment of a Short, Focused Training to Reduce Symptoms of Cybersickness. *PRESENCE: Virtual and Augmented Reality*, 27(4), 361-377. https://doi.org/10.1162/pres_a_00335
- Liang, M., **Starrett, M. J.**, & Ekstrom, A. D. (2018). Dissociation of frontal-midline delta-theta and posterior alpha oscillations: A mobile EEG study. *Psychophysiology*, 55(9), e13090. <https://doi.org/10.1111/psyp.13090>
- Starrett, M. J.**, & Ekstrom, A. D. (2018). Perspective: Assessing the Flexible Acquisition, Integration, and Deployment of Human Spatial Representations and Information. *Frontiers in Human Neuroscience*, 12, 281. <https://doi.org/10.3389/fnhum.2018.00281>
- Gosseries, O., Yu, Q., LaRocque, J. J., **Starrett, M. J.**, Rose, N. S., Cowan, N., & Postle, B. R. (2018). Parietal-occipital interactions underlying control- and representation-related processes in working memory for nonspatial visual features. *Journal of Neuroscience*, 38(18), 4357-4366. <https://doi.org/10.1523/JNEUROSCI.2747-17.2018>
- 2017 Ekstrom, A. D., Huffman, D. J., & **Starrett, M.** (2017). Interacting networks of brain regions underlie human spatial navigation: A review and novel synthesis of the literature. *Journal of Neurophysiology*, 188(6), 3328-3344. <https://doi.org/10.1152/jn.00531.2017>
- 2016 Rose, N. S., LaRocque, J. J., Riggall, A. C., Gosseries, O., **Starrett, M. J.**, Meyering, E. E., & Postle, B. R. (2016). Reactivation of latent working memories with transcranial magnetic stimulation. *Science*, 354(6316), 1136-1139. <https://doi.org/10.1126/science.aah7011>
- 2015 LaRocque, J. J., Eichenbaum, A. S. *, **Starrett, M. J.** *, Rose, N. S., Emrich, S. M., & Postle, B. R. (2015). The short- and long-term fates of memory items retained outside the focus of attention [Special issue]. *Memory and Cognition*, 43(3), 453-468. <https://doi.org/10.3758/s13421-014-0486-y>

Manuscripts in Process

- In Revision* Alexander, A. S.* , Place, R.* , **Starrett, M. J.***, Chrastil, E.R.†, & Nitz, D. A.† (2022). Rethinking retrosplenial cortex: Perspectives and predictions. *Neuron*.
- Under Review* **Starrett, M. J.**, Huffman, D. J., & Ekstrom, A. D. (2022). Combining Egoformative and Alloformative Cues in a Novel Tabletop Navigation Task.
- Submitted* Doner, S., Zheng, J., McAvan, A. S., **Starrett, M. J.**, Campbell, H., Sanders, D., & Ekstrom, A. D. (2022). Evidence for flexible navigation strategies during spatial learning involving path choices.
- In Prep* Chrastil, E. R., He, C., Tu, A. S., Munns, M.E., Hatamian N., **Starrett, M. J.**, Rashidi, F., Stark, C. E. L., Krichmar, J. L., & Hegarty, M. (2022). Individual differences in human navigation ability: Representations, predictors, and strategies. [Registered report].

CONFERENCE PROCEEDINGS

Talks

- 2017 **Starrett, M. J.**, Stokes, J. D., & Ekstrom, A. D. (2017, August 3-7). *Dynamic evolution of spatial representations during free ambulation of novel large-scale virtual environments* [Conference session]. Cognitive Science Association for Interdisciplinary Learning Annual Meeting, Hood River, OR, United States.
- 2015 Saad, E., **Starrett, M. J.**, LaRocque, J. J., Rose, N. S., & Postle, B. R. (2015, October 17-21). Multivariate assessment of biased competition in human visual attention. In C. Gray (Chair), *Assessment and Modulation of Human Working Memory* [Nanosymposium]. Society for Neuroscience Annual Meeting, Chicago, IL, United States.
- 2014 Riggall, A. C., Rose, N. S., **Starrett, M. J.**, & Postle, B. R. (2014, November 15-19). Frontoparietal contributions to the short-term retention of motion and color. In A. C. Nobre (Chair) *Working Memory* [Nanosymposium]. Society for Neuroscience Annual Meeting, Washington, D.C., United States.

First-Authored Posters

- 2022 **Starrett Ambrose, M. J.**, Rao, Y., Chi, L., Abarham, A., & Chrastil, E. R. (2022, June 14-16). *Graph properties influence route selection for equidistant paths* [Poster presentation]. 4th Interdisciplinary Navigation Symposium, online.
- 2021 **Starrett, M. J.**, Huffman, D. J., & Ekstrom, A. D. (2021, January 11-13). *Spatial learning through interaction: A hybrid "route" to a cognitive map*

[Poster presentation]. Society for Neuroscience Global Connectome: A Virtual Event.

2016

Starrett, M. J., Stokes, J. D., Kreylos, O., & Ekstrom, A. D. (2016, November 12-16). *Navigation in virtual reality with vestibular and proprioceptive input diminishes orientation-dependent spatial representations* [Poster presentation]. Society for Neuroscience Annual Meeting, San Diego, CA, United States.

Starrett, M. J., Stokes, J. D., & Ekstrom, A. D. (2016, August 2-5). *Vestibular and proprioceptive contributions to human spatial learning and memory during free-navigation of virtual reality environments* [Poster presentation]. Spatial Cognition 2016, Philadelphia, PA, United States.

Starrett, M. J., Stokes, J. D., & Ekstrom, A. D. (2016, May 17-18). *Vestibular and proprioceptive contributions to human spatial learning and memory during free-navigation of virtual reality environments* [Poster presentation]. Experiential Technology & Neurogaming Conference and Expo, San Francisco, CA, United States.

Starrett, M. J., Stokes, J. D., & Ekstrom, A. D. (2016, March 4). *Head- and body- based information contribute to immersive experience during virtual reality navigation* [Poster presentation]. Northern California Consciousness Meeting, Davis, CA, United States.

2015

Starrett, M. J., Gosseries, O., LaRocque, J. J., Saad, E., Cowan, N., & Postle, B. R. (2015, October 17-21). *Delay-period activity of the parietal cortex depends on working memory load, not interference representations* [Poster presentation]. Society for Neuroscience Annual Meeting, Chicago, IL, United States.

Starrett, M. J., Rose, N. S., Riggall, A. C., Samaha, J., & Postle, B. R. (2015, March 28-31). *EEG and behavioral effects of delay-period rTMS* [Poster presentation]. Cognitive Neuroscience Society Annual Meeting, San Francisco, CA, United States.

2014

Starrett, M. J., Rose, N. S., Riggall, A. C., & Postle, B. R. (2014, November 15-19). *Behavioral and EEG effects of rTMS on recall of items inside versus outside the focus of attention representations* [Poster presentation]. Society for Neuroscience Annual Meeting, Washington, D.C., United States.

Starrett, M. J., LaRocque, J. J., Rose N. S., & Postle, B. R. (2014, April 5-8). *In short-term memory but outside the focus of attention: A role for long-term memory?* [Poster presentation]. Cognitive Neuroscience Society Annual Meeting, Boston, MA, United States.

AWARDS, HONORS, AND FELLOWSHIPS

- 2022 Center for the Neurobiology of Learning and Memory's Roger W. Russell Scholar's Award in the Neurobiology of Learning and Memory (\$1,000)
University of California, Irvine
- 2020 Centennial Achievement Graduate Student Award (Nominated)
University of Arizona
- 2017 Psychology Professional Development Travel Fellowship (\$500)
University of California, Davis
- 2016 Duke's Travel Award (\$500)
University of California, Davis
- 2015 Psychology Department Fellowship (\$18,167)
University of California, Davis
- 08/2010 – 05/2011 Undergraduate Research Scholar Award (\$500)
University of Wisconsin-Madison

PROFESSIONAL SERVICE

- Mentorship Undergraduate Research Opportunities Program (Winter & Spring 2022)
University of California, Irvine
- AP Research – STEM (Fall 2021)
Thousand Oaks High School, Thousand Oaks, CA
- Professional Development Committee Mentorship Program (Fall 2020)
Department of Psychology, University of Arizona
- Mentor-Mentee Program in Humanities, Arts, Cultural Studies, and Social Sciences (Winter & Spring 2018)
University of California, Davis
- Mentorships for Undergraduate Research in Agriculture, Letters and Science (MURALS) program (Winter & Spring 2017)
University of California, Davis
- UC Davis Young Scholars Program (Summer 2016; Summer 2017)
University of California, Davis
- DE&I Inclusive Excellence Certificate: *UCI as a Minority Serving Institution* (Fall 2021), *Community Safety* (Spring 2022)
Office of Inclusive Excellence, University of California, Irvine
- Poster presenter, 2nd annual Neuroscience Initiative to Enhance Diversity, Apr 21-22, 2016, Center for Neuroscience, Davis, CA.

Poster presenter, Brain Awareness Week Neuroscience Public Seminars: The Healthy Aging Brain, Mar 12, 2016; Center for Neuroscience, Davis, CA.

- Conferences Organizing committee, *UC Davis 3D Imaging and Visualization Conference (ucd3d)*, January 22-23, 2018; Davis, CA.
- Ad hoc reviewer *Behavior Research Methods, Cognitive Research: Principles and Implications, Computers in Human Behavior, Journal of Experimental Psychology: General, Journal of Experimental Psychology: Human Perception and Performance, PLOS Computational Biology, PLOS One, Scientific Reports, Psychological Research, Transactions on Applied Perception*

RESEARCH EXPERIENCE

- 08/2018 – 05/2021 **University of Arizona**
Graduate Assistant, Research, Psychology
Supervisor: Arne D. Ekstrom, Ph.D.
- 09/2015 – 07/2018 **University of California, Davis,**
Graduate Student Researcher, Psychology & Center for Neuroscience
Supervisor: Arne D. Ekstrom, Ph.D.
- 07/2012 – 08/2015 **University of Wisconsin-Madison**
Associate Research Specialist (Lab Manager), Psychology & Psychiatry
Supervisor: Bradley R. Postle, Ph.D.
- 08/2010 – 06/2012 **University of Wisconsin-Madison**
Undergraduate Research Assistant, Psychology
Supervisor: Bradley R. Postle, Ph.D.

TEACHING EXPERIENCE

- UC, Davis **Teaching Assistant**
Cognitive Neuroscience (Fall 2017), Arne Ekstrom, Ph.D.
Advanced Cognitive Neuroscience (Spr. 2017), Arne Ekstrom, Ph.D.
Introduction to Cognitive Psychology (Sum. 2016), Branden Kolarik
Development of Memory (Spr. 2016), Simona Ghetti, Ph.D.
General Psychology (Win. 2016), Erin Freed
- UW-Madison **“Pre-Lab” Meeting Facilitator**
Cognitive Neuroscience of Working Mem. (2012-15), Brad Postle, Ph.D.

TECHNICAL EXPERIENCE

- Programing C#, R, MATLAB, Python, bash, (some) C++

Software Unity 3D (SteamVR, VRTK, Landmarks*), MATLAB (EEGLab, Fieldtrip, PsychToolBox), R (various packages), E-Prime, MPlus, SPSS, Git, Visual Studio & VS Code, Blender
* *Maintainer* (github.com/mjstarrett/)

Hardware EEG (Nexstim, Brain Vision), TMS (Magstim, Nexstim), Virtual reality head-mounted displays (Oculus DK2, Oculus Go, Oculus Quest, HTC Vive Pro Eye, Virtual reality omnidirectional treadmills (Cyberith Virtualizer, Cyberith Virtualizer Elite, Cyberith Virtualizer Elite 2, KatVR Kat Walk), Eye tracking (Pupil Labs, Tobii Pro)

AFFILIATIONS

2014 – Society for Neuroscience

2013 – 2015 Cognitive Neuroscience Society