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

EDUCATION

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

ACADEMIC APPOINTMENTS

- 2021 – **Postdoctoral Scholar** – Spatial Neuroscience Laboratory
University of California, Irvine, Department of Neurobiology & Behavior
Advisor: Elizabeth R. Chrastil, Ph.D.

PREDOCTORAL RESEARCH EXPERIENCE

- 2018 – 2021 **Graduate Assistant, Research** - Human Spatial Cognition Laboratory
University of Arizona, Department of Psychology
Supervisor: Arne D. Ekstrom, Ph.D.
- 2015 – 2018 **Graduate Student Researcher – Human Spatial Cognition Laboratory**
University of California, Davis, Department of Psychology & Center for Neuroscience
Supervisor: Arne D. Ekstrom, Ph.D.
- 2012 – 2015 **Associate Research Specialist (Lab Manager) – Postlab**
University of Wisconsin-Madison, Departments of Psychology & Psychiatry
Supervisor: Bradley R. Postle, Ph.D.
- 2010 – 2012 **Undergraduate Research Assistant – Postlab**
University of Wisconsin-Madison, Department of Psychology
Supervisor: Bradley R. Postle, Ph.D.

PUBLICATIONS (citations: 520; *i-10*-index: 8; *h*-index: 8, source: Google Scholar)
*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
- Preciado, C. E. †, **Starrett, M. J.**, & Ekstrom, A. D. (2021). 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
- 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 **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>
- 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>
- 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 Preparation* **Starrett, M. J.**, Huffman, D. J., & Ekstrom, A. D. (2021). Spatial learning through interaction: A hybrid “route” to a cognitive map.

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

- 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.

GRANTS, AWARDS, AND FELLOWSHIPS

- 2022
- NIH NIA T32 Institutional NRSA Postdoctoral Fellowship: Training in Translational ADRD Neuroscience (TITAN; T32AG073088)
University of California, Irvine, Department of Psychiatry

2020	Centennial Achievement Graduate Student Award (Nominated) <i>University of Arizona</i>
2017	Psychology Professional Development Travel Fellowship (\$500) <i>University of California, Davis</i>
2016	Duke's Travel Award (\$500) <i>University of California, Davis</i>
2015	Psychology Department Fellowship (\$18,167) <i>University of California, Davis</i>
2010 – 2011	Undergraduate Research Scholar Award (\$500) <i>University of Wisconsin-Madison</i>
2010	Dean's List, College of Letters and Sciences – Fall Semester <i>University of Wisconsin-Madison</i>

PROFESSIONAL SERVICE

Mentorship	AP Research – STEM (Fall 2021) <i>Thousand Oaks High School, Thousand Oaks, CA</i>
	Professional Development Committee Mentorship Program (Fall 2020) <i>Department of Psychology, University of Arizona</i>
	Mentor-Mentee Program in Humanities, Arts, Cultural Studies and Social Sciences (Winter & Spring 2018) <i>University of California, Davis</i>
	Mentorships for Undergraduate Research in Agriculture, Letters and Science (MURALS) program (Winter & Spring 2017) <i>University of California, Davis</i>
	UC Davis Young Scholars Program (Summer 2016; Summer 2017) <i>University of California, Davis</i>
Outreach	Poster presenter, 2 nd 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, <i>UC Davis 3D Imaging and Visualization Conference (ucd3d)</i> , January 22-23, 2018; Davis, CA.
Ad hoc reviewer	<i>Behavior Research Methods, Journal of Experimental Psychology: Human Perception and Performance, Spatial Cognition and Computation,</i>

Computers in Human Behavior, Transactions on Applied Perception, Scientific Reports, PLOS Computational Biology, Psychological Research

TEACHING EXPERIENCE

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

TECHNICAL EXPERIENCE

Programing	MATLAB, R, C#, Python, bash, (some) C++
Software	<p>Unity 3D (SteamVR, VRTK, Landmarks*), MATLAB (EEGLab, Fieldtrip, PsychToolBox), R (various packages), E-Prime, MPlus, SPSS, Git, Visual Studio & VS Code, Blender</p> <p>* <i>Maintainer</i> (github.com/mjstarrett/)</p>
Hardware	<p>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)</p>

AFFILIATIONS

2014 –	Society for Neuroscience
2013 – 2015	Cognitive Neuroscience Society