



- Adam Steel**, Brenda D. Garcia, Kala Goyal, Anna Mynick, Caroline E. Robertson (2023). Scene perception and visuospatial memory converge at the anterior edge of visually responsive cortex. *The Journal of Neuroscience*. 43(31): 5723-5737 DOI: <https://doi.org/10.1523/JNEUROSCI.2043-22.2023>
- Anna Mynick, **Adam Steel** (2023). Dissociating Hippocampal and Cortical Contributions to Predictive Processing. *The Journal of Neuroscience*. 43(2): 184-186 DOI: <https://doi.org/10.1523/JNEUROSCI.1840-22.2022>
- Adam Steel**, Brenda D. Garcia, Edward H. Silson, Caroline E. Robertson (2022). Evaluating the efficacy of multi-echo ICA denoising on model-based fMRI. *NeuroImage*. 264: 119723 DOI: <https://doi.org/10.1016/j.neuroimage.2022.119723>
- Adam Steel**, Madeleine M. Billings, Edward H. Silson, Caroline E. Robertson (2021). A network linking scene perception and spatial memory systems in posterior cerebral cortex. *Nature Communications*. 12:2632. DOI: <https://doi.org/10.1038/s41467-021-22848-z>
- Adam Steel**, Caroline Robertson, Jeff Taube (2020). Current promises and limitations of combined virtual reality and functional magnetic resonance imaging research in humans: A commentary on Huffman and Ekstrom (2019). *Journal of Cognitive Neuroscience*. DOI: [https://doi.org/10.1162/jocn\\_a\\_01635](https://doi.org/10.1162/jocn_a_01635)
- Adam Steel**, Mark Mikkelsen, Richard A. E. Edden, Caroline E. Robertson (2020). Regional Balance between glutamate+glutamine and GABA+ in the resting human brain. *NeuroImage*. 220: 117112. DOI: <https://doi.org/10.1016/j.neuroimage.2020.117112>.
- Adam Steel**, Chris I. Baker, Charlotte J. Stagg (2020). Intention to learn modulates the impact of reward and punishment on sequence learning. *Scientific Reports*. 10:8906. DOI: <https://doi.org/10.1038/s41598-020-65853-w>
- Edward H. Silson\*, **Adam Steel\***, Alexis Kidder, Adrian W. Gilmore, Chris I. Baker (2019). Distinct subdivisions of human medial parietal cortex are recruited differentially for memory recall of people and places. *eLife*. 8:e47391. DOI: <https://doi.org/10.7554/eLife.47391>
- Marcie King, Iris Groen, **Adam Steel**, Dwight Kravitz, Chris I. Baker (2019). Similarity judgments and cortical visual responses reflect different properties of object and scene categories in naturalistic images. *NeuroImage*. 197:368-382. DOI: <https://doi.org/10.1016/j.neuroimage.2019.04.079>
- Tim P. Lawrence, **Adam Steel**, Martynn Ezra, Mhairi Speirs, Pieter Pretorius, Gwenaelle Douaud, Stamatios Sotiropoulos, Thomas Cadoux-Hudson, Uzay E. Emir, Natalie L. Voets (2019). MRS and DTI evidence of progressive posterior cingulate cortex and corpus callosum injury in the hyper acute phase after TBI. *Brain Injury*. DOI: <https://doi.org/10.1080/02699052.2019.1584332>.
- Adam Steel**, Edward H. Silson, Charlotte J. Stagg, Chris I. Baker. Differential impact of reward and punishment on functional connectivity after skill learning (2019). *Neuroimage*. 189:95-105. DOI: <https://doi.org/10.1016/j.neuroimage.2019.01.009>

- Adam Steel\***, Cibu Thomas\*, Aaron Trefler, Gang Chen, Chris I. Baker. Finding the baby in the bath water - evidence for task-specific changes in resting state functional connectivity evoked by training (2019). *Neuroimage*. 118:524-538. DOI: <https://doi.org/10.1016/j.neuroimage.2018.12.038>
- Edward H. Silson\*, Adrian W. Gilmore\*, Sarah E. Kalinowski, **Adam Steel**, Alexis Kidder, Alex Martin, and Chris I. Baker (2018). A posterior-anterior distinction between scene perception and scene construction in human medial parietal cortex. *The Journal of Neuroscience*, 1219-18; DOI: <https://doi.org/10.1523/JNEUROSCI.1219-18.2018>.
- Adam Steel**, Mark Chiew, Peter Jezzard, Natalie Voets, M. Albert Thomas, Charlotte Stagg, and Uzay E. Emir (2018). New metabolite cycled density-weighted concentric rings k-space trajectory (DW-CRT) enables 1H magnetic resonance spectroscopic imaging at 3 Tesla. *Scientific Reports*. 8:7792. DOI: 10.1038/s41598-018-26096-y
- Adam Steel**, Cibu Thomas, Chris I. Baker (2018). Effect of time of day on reward circuitry. A discussion of Byrne et al. 2017. *arXiv*. arXiv:1802.00753 [q-bio.NC]. <http://arxiv.org/abs/1802.00753>
- Mark Chiew, Wenwen Jiang, Brian Burns, Peder Larson, **Adam Steel**, Peter Jezzard, M. Albert Thomas, and Uzay E. Emir (2017). Density-Weighted Concentric Rings K-Space Trajectory for 1H Magnetic Resonance Spectroscopic Imaging at 7 Tesla. *NMR in Biomedicine*. 2018:31:e3838. DOI: 10.1002/nbm.38388
- Leonora Wilkinson, Phillip J. Koshy, **Adam Steel**, Devin Bageac, Selene Schintu, Eric M. Wassermann (2017). Motor cortex inhibition by TMS impairs cognitive non-motor procedural learning when immediate feedback is present. *Cortex*, 11/2017; 97. DOI: 10.1016/j.cortex.2017.10.001.
- Adam Steel**, Edward H. Silson, Charlotte J. Stagg, Chris I. Baker (2016). The impact of reward and punishment on skill learning depends on task demands. *Scientific Reports*. 6:36056. DOI: 10.1038/srep36056.
- Edward H. Silson, **Adam D. Steel**, & Chris I. Baker (2016). Scene-Selectivity and Retinotopy in Medial Parietal Cortex. *Frontiers in Human Neuroscience*. 10(412). DOI: 10.3389/fnhum.2016.00412
- Adam Steel**, Sunbin Song, Devin Bageac, Kristine M. Knutson, Ziad S. Saad, Stephen J. Gotts, Eric M. Wassermann, Leonora Wilkinson (2015). Shifts in connectivity during procedural learning after motor cortex stimulation: A combined transcranial magnetic stimulation/functional magnetic resonance imaging study. *Cortex*. 74. DOI:10.1016/j.cortex.2015.10.004
- Sunbin Song, Lúcia Garrido, Zoltan Nagy, Siawoosh Mohammadi, **Adam Steel**, Jon Driver, Ray J Dolan, Bradley Duchaine, Nicholas Furl (2015). Local but not long-range microstructural differences of the ventral temporal cortex in developmental prosopagnosia. *Neuropsychologia*. 78. DOI:10.1016/j.neuropsychologia.2015.10.010
- Leonora Wilkinson, **Adam Steel**, Eric Mooshagian, Trelawny Zimmermann, Aysha Keisler, Jeffrey D Lewis, Eric M Wassermann (2015). Online feedback enhances early consolidation of motor sequence learning and reverses recall deficit from transcranial stimulation of motor cortex. *Cortex*. 7. DOI:10.1016/j.cortex.2015.06.012

Book Chapters

**Adam Steel**, Edward H. Silson (2022). Visual category-driven differences in memory. Ed: W. A. Bainbridge, T. F. Brady. *Visual memory*. Oxford, England: Routledge

**Mentorship**

2022-2023 Women in Science Program Supervisor (Nandhini Parthasarathy), *Dartmouth*  
 2022 Neukom Scholar supervisor (Kenna van Steyn), *Dartmouth*  
 2020-2021 Thesis advisor (Brenda Garcia; Best thesis award), *Dartmouth*  
 2019 Postdoctoral mentor (Madeleine Billings), *Dartmouth*  
 2017-2018 FHS (Thesis) Supervisor (Georgina James, St. Edmunds Hall), *Oxford*  
 2014 Summer internship Mentor (Caitlyn van Wicklin), *National Institutes of Health*  
 2013 Summer internship Mentor (Caitlyn van Wicklin), *National Institutes of Health*  
 2012 Summer internship Mentor (Angad Uppal), *National Institutes of Health*

**Teaching**

2020-2023 Lecturer, PBS 81.11: "Real-world scene perception", *Dartmouth*  
 2019 Assistant lecturer (Robertson), PBS 81: "Real-world scene perception", *Dartmouth*  
 2016 Tutor, FSL short course: "Neuroimaging methods and analysis", *Oxford*

Educational training

2020 Syllabus Design Workshop, *Dartmouth Center for Advancement of Learning (DCAL)*  
 2020 Future Faculty Teaching Workshop (Student-centered approaches), *DCAL*

**Editorial positions**

2020-current Reviewing editor, *Frontiers in Human Neuroscience*

**Journal Reviewer**

Nature Communications, Current Biology, eLife, NeuroImage, Cerebral Cortex, Imaging Neuroscience, PLOS Computational Biology, Human Brain Mapping, Journal of Neurophysiology, Scientific Reports, Journal of Cognitive Neuroscience, Cerebral Cortex Communications, PLOS One, Brain Stimulation, BMC Neuroscience, Experimental Brain Research, Experimental Brain and Behavior, Brain and Behavioral Research, Neuromodulation, Neurocase

**Leadership/Outreach**

2020-current Co-Founder, *Innovators in Cognitive Neuroscience*, <https://innovatorsincogneuro.github.io>  
 2019-current Organizer, *Dartmouth Brain Imaging Center fMRI Brown Bag Seminar Series*  
 2020-current Volunteer, *Skype-A-Scientist*  
 2020 Moderator, *Neuromatch 2020 2.0*  
 2016-2017 MCR (Graduate student association) Secretary, *Lincoln College (Oxford)*  
 2009-2010 Student Fellow, *Vassar College*

**Media interviews/appearances**

Feb. 2022 "New map of meaning in the brain changes ideas about memory." *Quanta magazine*.  
<https://www.quantamagazine.org/new-map-of-meaning-in-the-brain-changes-ideas-about-memory-20220208/>

Dec. 2022 "How the brain distinguishes perceptions from memories." *Quanta magazine*.  
<https://www.quantamagazine.org/how-the-brain-distinguishes-memories-from-perceptions-20221214/>

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## Presentation Sessions

### Invited talks

January 2024	NYU (Biyu He)
May 2023	BIU Vision Science Series (Sharon Gilaie-Dotan)
September 2022	University College London (Hugo Spiers)
November 2021	University of Chicago (Wilma Bainbridge)
January 2021	UC Davis (Charan Ranganath)
March 2020	MIT (Nancy Kanwisher)
April 2018	Dartmouth College (Caroline E. Robertson)
April 2018	University of Pennsylvania (Danielle Bassett)
April 2018	Columbia University (Daphna Shohamy)
March 2018	Johns Hopkins University (Marina Bedny)
June 2017	University of Pittsburgh (Vishnu Murty)
February 2017	University of East Anglia (George Malcolm)
December 2016	University of Birmingham (Joseph Galea)

### Conference presentations

Steel, A. (May 2023). *A retinotopic reference frame structures perception-memory interactions*. Vision Science Society Meeting. Talk. St. Petes Beach, Florida.

Steel, A. (May 2020). The place memory network: an interface between spatial memory and scene perception. *Neuromatch 2020 2.0*. Short talk. [Video presentation: https://youtu.be/nsXHrDDrJkw?t=15230](https://youtu.be/nsXHrDDrJkw?t=15230)

Steel, A., Billings, M. M., Robertson, C. E. (May 2020). *The place memory network: A network of brain areas supporting perception and memory of familiar places*. V-VSS.

Steel, A., Robertson, C. E. (November 2019). *Balance of excitation and inhibition in the human brain*. International Symposium on GABA and Advanced MRS. Symposium presentation. Salt Lake City, Utah.

Steel, A., Wilkinson, L., Mooshagian, E., Zimmermann, T., Keisler, A., Lewis, J.D., Wassermann, E.M (November 2014). *Reduction of primary motor cortex cTBS excitability predicts benefit of feedback for retention of sequence learning*. Nanosymposium presentation. Society for Neuroscience meeting in Washington, DC.

### Poster sessions

Steel, A., Silson, E. H., Garcia, B. D., Robertson, C. E. (November 2023). *Inverted visual coding at the cortical apex in neurotypical and autistic people*. Society for Neuroscience Annual Meeting. Poster. Washington, DC

- Steel, A., Silson, E. H., Garcia, B. D., Robertson, C. E. (August 2023). *A retinotopic reference frame structures perception-memory interactions*. Cognitive Computational Neuroscience. Poster. Oxford, United Kingdom
- Steel, A., Silson, E. H., Garcia, B. D., Robertson, C. E. (March 2023). *A retinotopic reference frame structures perceptual-mnemonic interactions*. Poster presentation. Cognitive Neuroscience Society Meeting. San Francisco, CA.
- Steel, A., Silson, E. H., Garcia, B. D., Robertson, C. E. (November 2022). *A retinotopic reference frame structures perceptual-mnemonic interactions*. Poster presentation. Society for Neuroscience Annual Meeting. San Diego, CA.
- Steel, A., Garcia, B. D., Mynick, A., Goyal K., Robertson, C. E. (April 2022). *Representation of visuospatial context in posterior cerebral cortex*. Poster presentation. Cognitive Neuroscience Society Meeting. San Francisco, CA.
- Steel, A., Billings, M. M., Robertson, C. E. (May 2020). *Distinct neural substrates for scene perception and imagery*. *Cognitive Neuroscience Society Annual Meeting*. Virtual poster. Video presentation: <https://www.youtube.com/watch?v=e-v7w5vzntQ>
- Steel, A., Silson, E., Kidder, A., Gilmore, A. W., Baker, C. I. (May 2019). *Recall of people and places reveals regions showing distinct effects of category and familiarity in high-level cortex*. Poster presentation. Visual Science Society Annual Meeting.
- Steel, A., Silson, E., Baker, C. I. (November 2018). *Distinct subdivisions in medial parietal cortex revealed by functional connectivity with category-selective ventral temporal cortex*. Poster presentation. Meeting of the Society for Neuroscience. San Diego, CA.
- Steel A., Chiew, M., Jezzard, P., Voets, N., Thomas, M. A., Stagg, C. J. , Emir, U. E.. (June 2018). *New metabolite cycled density-weighted concentric rings k-space trajectory (DW-CRT) enables 1H magnetic resonance spectroscopic imaging at 3 Tesla in a clinically feasible timeframe*. Poster presentation. ISMRM. Paris, France.
- Steel, A., James, G., Chiew, M., Thomas, M. A., Emir, U. E., Stagg, C. J. (June 2018). *Regional GABA levels assessed by magnetic resonance spectroscopic imaging predict motor behaviors*. Poster presentation. Organization for Human Brain Mapping. Singapore, Singapore.
- Steel, A., Silson, E. H., Baker, C. I. (May 2018). *Functional connectivity to ventral temporal cortex reveals category selectivity in medial parietal areas*. Poster presentation. Visual Sciences Society Meeting. St. Pete's Beach, FL.
- Steel, A., Silson, E., Stagg, C. J., Baker, C. I. (April 2018). *Intentionality modulates the impact of reward and punishment on performance during sequence learning*. Poster presentation. Cognitive Neuroscience Society Meeting. Boston, MA.
- Steel, A., Silson, E., Stagg, C. J., Baker, C. I. (June 2017). *Opposing effects of reward and punishment on motor skill learning*. Poster presentation. Organization for Human Brain Mapping meeting in Vancouver, British Columbia, Canada.

- Steel, A., Silson, E., Stagg, C. J., Baker, C. I. (May 2017). *Reward and punishment differentially recruit cerebellum and hippocampus to support skill stabilization*. Poster presentation. Conference of the Neural Control of Movement. Dublin, Ireland.
- Steel, A., Silson, E., Stagg, C. J., Baker, C. I. (April 2017). *Opposing effects of reward and punishment on motor skill learning*. Poster presentation. British Neuroscience Association Festival of Neuroscience, Birmingham, UK.
- Steel, A., Silson, E., Stagg, C. J., Baker, C. I. (April 2017). *Reward and punishment differentially recruit cerebellum and hippocampus to support skill stabilization*. Poster presentation. Thomas Willis Day, University of Oxford, Oxford, UK.
- Steel, A., Thomas, C., Gang, C., Trefler, A., Baker, C. I. (March 2017). *Measuring the impact of short term training on brain networks using resting-state connectivity*. Poster presentation. Cognitive Neuroscience Society Meeting in San Francisco, California.
- Steel, A., Silson, E., Stagg, C. J., Baker, C. I. (November 2016). *Impact of reward and punishment on the neural correlates of sequence learning*. Poster presentation. Meeting of the Society for Neuroscience in San Diego, California.
- Steel, A., Silson, E., Stagg, C. J., Baker, C. I. (June 2016). *Impact of reward and punishment on motor skill learning*. Poster presentation. Organization for Human Brain Mapping meeting in Geneva, Switzerland.
- Steel, A., Silson, E., Stagg, C. J., Baker, C. I. (June 2016). *Impact of reward and punishment on motor skill learning*. Poster presentation. NIH OxCam colloquium in Cambridge, UK.
- Steel, A., Silson, E., Stagg, C. J., Baker, C. I. (April 2016). *Dissociating the impact of reward and punishment on performance and retention of skilled behaviors*. Poster presentation. Cognitive Neuroscience Society Annual Meeting in New York, NY.
- Steel, A., Silson, E., Stagg, C. J., Baker, C. I. (November 2015). *Impact of feedback valence during skill learning on dynamic and static functional connectivity*. Poster presentation. Society for Neuroscience meeting in Chicago, IL.
- Steel, A., Silson, E., Stagg, C. J., Baker, C. I. (June 2015). *Feedback improves sequence performance and decreases global connectivity after learning*. Poster presentation. NIH OxCam colloquium in Cambridge, UK.
- Steel, A., Silson, E., Stagg, C. J., Baker, C. I. (June 2015). *Feedback improves sequence performance and decreases global connectivity after learning*. Poster presentation. Organization for Human Brain Mapping meeting in Honolulu, HI.
- Bell, A., Steel, A. (May 2012). *Cabin Fever: Effects of group housing on stress induced frustration*. Mid-Hudson Valley Life Sciences Conference, New Paltz, NY.

#### Extra curricular activities and interests

Marathon and ultra marathon running 2013-present  
Lincoln College Boat Club, University of Oxford 2015-May 2018  
Vassar College Rugby 2008-2012