August 2025
kevin.o'neill@ucl.ac.uk
kevingoneill.github.io
0000-0001-7401-9802

Kevin G. O'Neill, Ph.D.

Experience

Postdoctoral Research Associate 2024–present
MetaLab — Prof. Stephen Fleming
University College London

Computer Scientist 2017–2018
ARCADIA Project — Dr. Paul Bello
U.S. Naval Research Laboratory

Undergraduate Researcher 2015–2017
Rensselaer Artificial Intelligence and Reasoning (RAIR) Laboratory — Dr. Selmer Bringsjord
Rensselaer Polytechnic Institute

Education

Duke University 2018–2024
Imagination and Modal Cognition Laboratory — Dr. Felipe De Brigard
Pearson Laboratory — Dr. John Pearson

Ph.D., Psychology & Neuroscience GPA: 3.96
Dissertation: The modal and metacognitive nature of causal judgment
Committee: Dr. Tamar Kushnir, Dr. Walter Sinnott-Armstrong

M.A., Psychology & Neuroscience GPA: 3.96
Thesis: Certainty and singular causal judgment
Committee: Dr. Elika Bergelson, Dr. Benjamin Eva

Rensselaer Polytechnic Institute 2014–2017
Bachelor of Science, Cognitive Science and Computer Science GPA: 3.97

Manuscripts Under Review/ In Preparation

O'Neill, **K.**, Lagnado, D., & Fleming, S. M. (In preparation). Metacognition as modal cognition.

O'Neill, **K.**, Singmann, H., & Fleming, S. M. (In preparation). Extreme-value signal detection theory provides a less biased measure of metacognitive efficiency.

O'Neill, **K.** (In preparation). A distributional perspective on counterfactual and causal sensitivity.

Cheung, V., **O'Neill**, **K.**, de Lanerolle, R., & Lagnado, D. (In preparation). Incidental character information influences moral judgments across domains.

Łuczak, W., **O'Neill**, **K.**, & Fleming, S. M. (Under review). Confidence is detection-like in high-dimensional spaces. *arXiv*.

O'Neill, **K.**, Miceli, K., Van Rooy, N., & De Brigard, F. (In preparation). Causation on a continuum: No normality effects on causal judgments about continuous causes.

Journal Papers

Quillien, T., **O'Neill**, **K.**, & Henne, P. (2025). A counterfactual explanation for recency effects in double prevention scenarios: commentary on Thanawala and Erb (2024). *Cognition*.

Geddert, R.*, Madlon-Kay, S.*, **O'Neill**, **K.**, Pearson, J., & Egner, T. (2025). Modeling of control over task-switching and cross-task interference supports a two-dimensional model of cognitive stability and flexibility. *Psychonomic Bulletin & Review*.

O'Neill, **K.**, Henne, P., Pearson, J., & De Brigard, F. (2024). Modeling confidence in causal judgments. *Journal of Experimental Psychology: General*.

Krasich, K.*, **O'Neill**, **K.***, & De Brigard, F. (2024). Eye-tracking mental simulation during retrospective causal reasoning. *Cognitive Science*.

Murray, S., **O'Neill**, **K.**, Bridges, J., Sytsma, J., & Irving, Z. (2024). Blame for hum(e)an beings: The role of character information in judgments of blame. *Social Psychological and Personality Science*.

Krasich, K.*, **O'Neill**, **K.***, Murray, S., De Brigard, F., & Nuthmann, A. (2023). A computational modeling approach to investigating mind wandering-related adjustments to gaze behavior during scene viewing. *Cognition*.

Krasich, K., Simmons, C., **O'Neill**, **K.**, Giattino, C. M., De Brigard, F., Sinnott-Armstrong, W., Mudrik, L., & Woldorff, M. G. (2022). Prestimulus oscillatory brain activity interacts with evoked recurrent processing to facilitate conscious visual perception. *Scientific Reports*, *12*(1), 22126.

Khoudary, A., Hanna, E., **O'Neill**, **K.**, Iyengar, V., Clifford, S., Cabeza, R., De Brigard, F., & Sinnott-Armstrong, W. (2022). A functional neuroimaging investigation of moral foundations theory. *Social Neuroscience*, 1–17.

Khoudary, A., **O'Neill**, **K.**, Faul, L., Murray, S., Smallman, R., & De Brigard, F. (2022). Neural differences between internal and external episodic counterfactual thoughts. *Philosophical Transactions of the Royal Society B*, *377*(1866), 20210337.

Henne, P., & **O'Neill**, **K.** (2022). Double Prevention, Causal Judgments, and Counterfactuals. *Cognitive Science*.

O'Neill, **K.**, Henne, P., Bello, P., Pearson, J., & De Brigard, F. (2022). Confidence and gradation in causal judgment. *Cognition*, *223*, 105036.

O'Neill, **K.**, Liu, A., Yin, S., Brady, T., & De Brigard, F. (2021). Effects of category learning strategies on recognition memory. *Memory & cognition*, 1–15.

Henne, P., **O'Neill**, **K.**, Bello, P., Khemlani, S., & De Brigard, F. (2020). Norms affect prospective causal judgments. *Cognitive Science*.

O'Neill, **K.**, Smith, A. P., Smilek, D., & Seli, P. (2020). Dissociating the freely-moving thought dimension of mind-wandering from the intentionality and task-unrelated thought dimensions. *Psychological Research*.

Seli, P., **O'Neill**, **K.**, Carriere, J. S., Smilek, D., Beaty, R. E., & Schacter, D. L. (2020). Mind-wandering across the age gap: Age-related differences in mind-wandering are partially attributable to age-related differences in motivation. *The Journals of Gerontology: Series B*.

O'Neill, **K.**, & De Brigard, F. (2019). Two challenges for a dual system approach to temporal cognition [Commentary on "Thinking in and about time: A dual systems perspective on temporal cognition" by Hoerl, C. and McCormack, T.]. *Brain and Behavioral Sciences*, 1–77.

Govindarajulu, N. S., Bringsjord, S., Sen, A., Paquin, J. C., & **O'Neill**, **K.** (2018). Ethical operating systems. In De Mol, Liesbeth and Primiero, Giuseppe (Ed.), *Reflections on Programming Systems: Historical and Philosophical Aspects* (pp. 235–260). Springer.

Conference Papers

O'Neill, **K.**, Henne, P., Quillien, T., Icard, T., & De Brigard, F. (2025). Norms moderate causal judgments in cases of double prevention. *Proceedings of the Annual Meeting of the Cognitive Science Society*, *47*.

O'Neill, **K.**, Quillien, T., & Henne, P. (2022). A counterfactual model of causal judgments in double prevention. *Conference on Cognitive Computational Neuroscience*.

O'Neill, **K.**, Krasich, K., Murray, S., Brockmole, J., Nuthmann, A., & De Brigard, F. (2022). Fixation duration variability increases with mind wandering during scene viewing. *Conference on Cognitive Computational Neuroscience*.

Krasich, K., **O'Neill**, **K.**, & De Brigard, F. (2022). Eye-tracking mental simulation during retrospective causal reasoning. *Proceedings of the Annual Meeting of the Cognitive Science Society*, *44*.

O'Neill, **K.**, Henne, P., Pearson, J., & De Brigard, F. (2022). Measuring and modeling confidence in human causal judgment. *Proceedings of the Annual Meeting of the Cognitive Science Society*, *44*.

O'Neill, **K.**, Henne, P., Pearson, J., & De Brigard, F. (2021). Measuring and modeling confidence in human causal judgment. *Workshop on Metacognition in the Age of AI: Challenges and Opportunities, 35th Conference on Neural Information Processing Systems (NeurIPS 2021), Sydney, Australia*.

Yin, S., **O'Neill**, **K.**, Brady, T., & De Brigard, F. (2019). The effect of category learning on recognition memory: a signal detection theory analysis. *Proceedings of the 41st Annual Meeting of the Cognitive Science Society*.

Bello, P., **O'Neill**, **K.**, & Bridewell, W. (2019). Artificial agency requires attention: the case of intentional action. *AAAI Spring Symposium: Towards Conscious AI Systems*.

O'Neill, **K.**, Bridewell, W., & Bello, P. (2018). Time-based resource sharing in ARCADIA. *Proceedings of the 40th Annual Meeting of the Cognitive Science Society*.

Bello, P., Lovett, A., Briggs, G., & **O'Neill**, **K.** (2018). An attention-driven model

of human causal reasoning. *Proceedings of the 40th Annual Meeting of the Cognitive Science Society*.

Talks

O'Neill, K. (2025). Mutual relationships between modal cognition and metacognition. Part of the symposium *Bridges between modal cognition and episodic simulation*. *European Society for Philosophy & Psychology*, *Conference on Cognitive Computational Neuroscience*.

O'Neill, K., Singmann, H., & Fleming, S. M. (2025) Extreme-value signal detection theory provides a less biased measure of metacognitive efficiency. *Metacognitive Science Satellite Conference*.

O'Neill, K. (2025). Rethinking counterfactual and causal sensitivity. Part of the symposium *Understanding and Modeling Causal Judgments: perspectives from philosophy, cognitive science, and economics*. *Philosophy, Politics, and Economics Society*.

O'Neill, K., Lagnado, D., & Fleming, S. M. (2025) Metacognition as modal cognition. *Association for the Scientific Study of Consciousness*.

O'Neill, K., Henne, P., Icard, T., Quillien, T., & De Brigard, F. (2023). Disentangling double prevention. *Society for Philosophy and Psychology*.

O'Neill, K., Krasich, K., Murray, S., Brockmole, J., Nuthmann, A., & De Brigard, F. (2023). Fixation duration variability increases with mind wandering during scene viewing. *Current Issues in Mind-Wandering Research*.

O'Neill, K., Stern, R., & Eva, B. (2023). Colliding intuitions about causeless correlations: an investigation of human reasoning errors in collider causal structures. *Southern Society for Philosophy and Psychology*.

Henne, P. & **O'Neill, K.** (2022-2023). Double prevention, causal judgments, and counterfactuals. *Invited talk for the Causality in Cognition Lab, Stanford*; *Southern Society for Philosophy and Psychology*.

O'Neill, K., Henne, P., Pearson, J., De Brigard, F. (2022). Measuring and modeling confidence in human causal judgment. *Cognitive Science Society*; *Society for Philosophy and Psychology*; *Southern Society for Philosophy and Psychology*.

Krasich, K., **O'Neill, K.**, De Brigard, F. (2022). Eye tracking mental simulations during retrospective causal reasoning. *Cognitive Science Society*; *Society for Philosophy and Psychology*; *Southern Society for Philosophy and Psychology*; *London Judgment and Decision-Making Seminar*.

O'Neill, K. (2022). Disentangling confidence and causal judgment. *Invited talk for the Consciousness Club, Meta Lab, University College London*.

O'Neill, K. (2022). Confidence & singular causal judgment. *Invited talk for the Cognitive and Neural Computation Lab, University of California Irvine*.

Khoudary, A., **O'Neill, K.**, Faul, L., Murray, S., Smallman, R., De Brigard, F. (2021-2022). Neural differences between internal and external episodic counterfactual thoughts. *Neuromatch Conference 4.0*.

O'Neill, K., Henne, P., Bello, P., Pearson, J., De Brigard, F. (2021). Degrading causation. *Invited talk at Causal Cognition Lab, UCL*; *XPhi Europe*.

Bello, P., **O'Neill, K.**, Bridewell, W. (2019). Artificial agency requires attention: the case of intentional action. In *AAAI Spring Symposium: Towards Conscious AI Systems*.

O'Neill, K., Bridewell, W., Bello, P. (2018). Time-based resource sharing in ARCADIA. *40th Annual Meeting of the Cognitive Science Society*.

O'Neill, K., Bringsjord, S. Solving the lottery paradox in a cognitive calculus. (2016). *International Association for Computing and Philosophy*.

Poster Presentations

O'Neill, K., Lagnado, D., & Fleming, S. M. (2025) Metacognition as modal cognition. *Conference on Cognitive Computational Neuroscience*.

O'Neill, K., Henne, P., Quillien, T., Icard, T., & De Brigard, F. (2025). Norms moderate causal judgments in cases of double prevention. *Cognitive Science Society*.

Miceli, K., Van Rooy, N., **O'Neill, K.**, & De Brigard, F. (2024). Causation on a continuum: no normality effects on causal judgments. *Cognitive Science Society*; *European Society for Philosophy & Psychology*.

Murray, S., **O'Neill, K.**, Bridges, J., Sytsma, J., & Irving, Z. (2023). The role of character information in judgments of blame. *Society for Philosophy and Psychology*.

Fernández-Miranda, G., **O'Neill, K.**, Stanley, M., Kushnir, T., & De Brigard, F. (2023). The influence of perceived control on forgiveness. *Preconference on Justice and Morality, Society for Personality and Social Psychology*.

Krasich, K., Simmons, C., **O'Neill, K.**, Giattino, C.M., Sinnott-Armstrong, W., De Brigard, F., Mudrik, L., & Woldorff, M.G. (2022). Prestimulus alpha oscillatory activity interacts with evoked recurrent processing to facilitate conscious visual perception. *Society for Neuroscience*.

O'Neill, K., Quillien, T., Henne, P. (2022). A counterfactual model of causal judgments in double prevention. *Conference on Cognitive Computational Neuroscience*.

O'Neill, K., Krasich, K., Murray, S., Brockmole, J., Nuthmann, A., De Brigard, F. (2022). Fixation duration variability increases with mind wandering during scene viewing. *Conference on Cognitive Computational Neuroscience*.

Khoudary, A., **O'Neill, K.**, Faul, L., Murray, S., Smallman, R., De Brigard, F. (2022). Neural differences between internal and external episodic counterfactual thoughts. *Cognitive Neuroscience Society Annual Meeting*.

O'Neill, K., Henne, P., Bello, P., Pearson, J., De Brigard, F. (2021). Measuring and modeling confidence in human causal judgment. *Workshop on Metacognition in the Age of AI: Challenges and Opportunities, 35th Conference on Neural Information Processing Systems (NeurIPS 2021), Sydney, Australia*.

O'Neill, K., Henne, P., Bello, P., Pearson, J., De Brigard, F. (2021). Confidence effects on causal judgment. *Psychonomics*.

O'Neill, K., Henne, P., Bello, P., Pearson, J., De Brigard, F. (2021). Degrading causation. *Society for Philosophy and Psychology Annual Meeting*.

Khoudary, A., Hanna, E., **O'Neill, K.**, Iyengar, V., Clifford, S., Cabeza, R., De Brigard, F., Sinnott-Armstrong, W. (2021). A functional neuroimaging investigation of moral foundations theory. *Society for Philosophy and Psychology Annual Meeting*; *2020 meeting of the Cognitive Neuroscience Society*.

Smith, A., **O'Neill, K.**, Smilek, D., Seli, P. (2019). On the utility of the dynamic framework of mind wandering. *Psychonomics*.

Yin, S., **O'Neill, K.**, Brady, T., De Brigard, F. (2019). The effect of category learning on recognition memory: a signal detection theory analysis. *41st Annual Meeting of the Cognitive Science Society*.

Lovett, A., Briggs, G., **O'Neill, K.**, Bello, P. (2018). Strategic deployment of attention in online causal judgment: a computational model. *Journal of Vision*, 18(10), 741-741.

Bello, P., Lovett, A., Briggs, G., **O'Neill, K.** (2018). An attention-driven model of human causal reasoning. *40th Annual Meeting of the Cognitive Science Society*.

Teaching

Coursework

Entering Mentoring Series 2022
Certificate in College Teaching 2018–2021

Teaching Assistant

PSY482S: Psychology of Imagination — Dr. Tamar Kushnir, Duke Fall 2021
PSY204L: Research Methods & Statistics — Dr. Angela Vieth, Duke Spring 2021
PSY102: Cognitive Psychology — Dr. Ruth Day, Duke Fall 2020
Neuromatch Academy — pod-089-solid-firefly Summer 2020

Guest Lecturer

Rational Choice, Summer 2025
Causal reasoning — Prof. Ulrike Hahn, Birkbeck, University of London
Computational Modeling, Spring 2023,
Moral Judgment — Cognitive Neuroscience Research Internship, Duke Fall 2022
Are Humans Rational? — Dr. Selmer Bringsjord, RPI Fall 2016 – Spring 2017
Intro To Logic — Dr. Selmer Bringsjord, RPI Fall 2016 – Spring 2017

Mentorship

Kaylee Miceli, Nina Van Rooy 2024
Causation on a continuum: no normality effects on causal judgments
Duke University

Morgan Biele 2022
Mental images guide counterfactual and causal thinking across development
Duke University

Sara Rose Shannon 2022
Assessing the plausibility of unconscious arithmetic
Duke University

Mya Harris, Anthony Salgado 2022
The memory basis of norm effects on causal judgment
Duke University

Yuleika Martinez Castillo 2022
R for data science
Duke University

Gabriela Fernández Miranda 2021-2022
Memory, forgiveness, and future thinking
Duke University

Ari Khoudary 2020-2021
A functional neuroimaging investigation of moral foundations theory
Duke University

Jason Chen, Corey Elowski, Ari Khoudary, Cambria Revsine 2020
Predicting fMRI responses: a machine learning approach
Neuromatch Academy

Georgia Hadjis, Anna Dorokhova, 2020
Alex Vargas, Wen Jian, Sarah Hanson
Predicting social task performance and brain activities based on emotional task and relational task: an analysis of the HCP dataset
Neuromatch Academy

Awards/ Honors

Charles Lafitte Foundation Graduate Travel Award	2024
Duke IBRC Research Mini-Grant	2022
Cognitive Science Society Student Travel Grant	2022
Southern Society for Philosophy & Psychology Travel Award	2022
NSF Graduate Research Fellowship Honorable Mention	2019
Duke Chancellors Scholars Fellowship	2018
Undergraduate Research Fellowship	2015–2017
Rensselaer Leadership Award	2014–2017
Mona & Edward Zander '68 Scholarship	2014–2017
Dean's List/Dean's Honor List	2014–2017

Projects

SpikingNeuralNets.jl: A system for simulating systems of spiking neural networks
ARCADIA: A computational framework for attention-centered cognitive modeling
MetaProver: Automated logical and meta-logical reasoning via analytic tableaux
OSCAR: A restoration of John Pollock's natural deduction theorem prover

---

Skills

Programming
R, Stan, Python, HTML/CSS/Javascript, Julia, MATLAB, Unix, Git, LaTeX
Data Collection/Analysis
Behavioral, fMRI, eye tracking data
Mixed-effect modeling, Bayesian statistics, multivariate statistics
Computation
Computational cognitive modeling, ML, Parallel/High-performance computing
Languages

German (intermediate)

Service

UCL Centre for Behavioural Data Science 2024–present
Lecturer, Member

Cognitive Neuroscience Research Internship 2022–2024
Lecturer, Research Mentor

Duke Center for Cognitive Neuroscience 2022
Graduate Representative

Duke Institute for Brain Sciences Methods Meetings 2020–Present
Founder

Duke Philosophy of Neuroscience Journal Club 2020–Present
Co-Founder

Duke University Neuroscience Experience (DUNE) 2020
Volunteer

Duke Psychology & Neuroscience 2021-2022
Panelist, Graduate School Information Session

Duke Cognitive Neuroscience Admitting Program 2019-2022
Recruitment

Cognitive Science, **Cognitive Systems Research**, **Erkenntnis**, **International Conference on Machine Learning**, **Journal of Experimental Psychology: General**, **Open Mind**, **Memory & Cognition**, **Philosophical Psychology**
Ad-Hoc Reviewing

Affiliations
Past & Present

Association for the Advancement of Artificial Intelligence (AAAI)
Association for the Scientific Study of Consciousness (ASSC)
Cognitive Science Society (CSS)
European Society for Philosophy and Psychology (ESPP)
International Association of Computing and Philosophy (IACAP)
Psychonomic Society (PS)
Society for Philosophy and Psychology (SPP)
Southern Society for Philosophy and Psychology (SSPP)

References

Prof. Stephen Fleming
Professor
Cognitive Neuroscience
Department of Experimental Psychology
University College London
stephen.fleming@ucl.ac.uk
https://metacoglab.org

Dr. Felipe De Brigard
Professor
Philosophy
Psychology & Neuroscience
Center for Cognitive Neuroscience
Duke University
felipe.debrigard@duke.edu
https://imclab.org
(919) 660-3028

Dr. John Pearson
Associate Professor
Neurobiology
Biostatistics & Bioinformatics
Electrical and Computer Engineering
Psychology & Neuroscience
Center for Cognitive Neuroscience
Duke University
john.pearson@duke.edu
https://pearsonlab.github.io
(919) 613-8338