# Kevin G. O'Neill

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## Education

**Duke University** — Fall 2018 - Present
*Ph.D.,* Psychology & Neuroscience (anticipated 2023) — GPA: 3.96
*M.A.,* Psychology & Neuroscience — GPA: 3.96
Imagination and Modal Cognition Laboratory — Dr. Felipe De Brigard
Pearson Laboratory — Dr. John Pearson

**Rensselaer Polytechnic Institute** — Class of 2017
*Bachelor of Science,* Cognitive Science and Computer Science — GPA: 3.97

## Work Experience

**Computer Scientist** — 2017–Present
ARCADIA Project — Paul Bello
U.S. Naval Research Laboratory

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

**Federal Work Study** — 2014–2017
Rensselaer Department of Cognitive Science

## Manuscripts Under Review/ In Preparation

**O'Neill, K.**, Henne, P., Pearson, J., & De Brigard, F. (In preparation). Modeling confidence in human causal judgment.

Krasich, K., **O'Neill, K.**, Murray, S., Nuthmann, A., & De Brigard, F. (In preparation). A mind lively and at ease: What fixation durations say about the extent of visual processing.

Khoudary, A., **O'Neill, K.**, Faul, L., Murray, S., Smallman, R., & De Brigard, F. (2022). Neural differences in dispositional versus situational-based counterfactual thoughts. *Philosophical Transactions of the Royal Society B.*

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

Murray, S., Henne, P., **O'Neill, K.**, Wang, J., & De Brigard, F. (Under review). What you foresee isn't what you forget: No evidence for the influence of epistemic states on causal judgments for abnormal negligent behavior.

Krasich, K., **O'Neill, K.**, & De Brigard, F. (Under review). Eye tracking mental simulations during retrospective causal reasoning.

Bringsjord, S., & **O'Neill, K.** (In Press). Third-millenium computational logic. *Minds and Machines.*

## Journal Papers

Henne, P., & **O'Neill, K.** (2022). Double Prevention, Causal Judgments, and Coun-

terfactuals. *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. and Bringsjord, S. and Sen, A. and Paquin, J. C. and **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.

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**Conference Papers**

**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.*

**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.*

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**Talks**

Henne, P. & **O'Neill, K.** Double Prevention, Causal Judgments, and Counterfactuals. *Invited talk for the Causality in Cognition Lab, Stanford.*

**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.*

**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.*

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**Poster Presentations**

**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.*

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## Teaching

**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**

*Are Humans Rational?* — Dr. Selmer Bringsjord, RPI — Fall 2016 - Spring 2017
*Intro To Logic* — Dr. Selmer Bringsjord, RPI — Fall 2016 - Spring 2017

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## Mentorship

**Yuleika Martinez Castillo** — 2022
*R for Data Science*
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

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**Awards/ Honors**

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| Cognitive Science Society Student Travel Grant | 2022 |
| Southern Society for Philosophy & Psychology Travel Award | 2022 |
| NSF GRFP 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 |

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**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

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**Skills**

**Programming**
Python, R, C/C++, Java/Javascript, Clojure/Scheme/Lisp, Julia, MATLAB, HTML/CSS, Prolog, Unix, Git, LaTeX
**Data Collection/Analysis**
Behavioral, fMRI, eye tracking data
Mixed-effect modeling, Bayesian statistics, multivariate statistics
**Artificial Intelligence**
Cognitive modeling, ML, Symbolic AI, NLP, Parallel/High-Performance Computing
**Software Engineering**
Software development, verification, and visualization
**Languages**
German (intermediate)

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**Service**

**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
**Cognitive Science**, **Duke Psychology & Neuroscience** 2021-2022
Panelist, Graduate School Information Session
**Duke Cognitive Neuroscience Admitting Program** 2019-2022
Recruitment **Cognitive Systems Research**
Ad-Hoc Reviewing

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**Affiliations Past & Present**

Association for the Advancement of Artificial Intelligence (AAAI)
Cognitive Science Society (CSS)

International Association of Computing and Philosophy (IACAP)
Psychonomic Society (PS)
Society for Philosophy and Psychology (SPP)
Southern Society for Philosophy and Psychology (SSPP)

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**References**


**Felipe De Brigard, Ph.D.**
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Philosophy
Psychology & Neuroscience
Center for Cognitive Neuroscience
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**John Pearson, Ph.D.**
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