

Jake Ryan Embrey

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Education

- 2024 **PhD, Cognitive Psychology**
UNSW Sydney
Supervised by Prof. Ben Newell & Prof. Chris Donkin
Dean's Award for Outstanding Dissertation
- 2021 **Graduate Certificate in Data Science**
University of Sydney
- 2017 **Bachelor of Psychological Science (Honours)**
UNSW Sydney
Major in Philosophy

Employment

- 2024 – present **Postdoctoral Principal Researcher** University of Chicago, Booth School of Business
- Supervised by Prof. Dan Bartels, Prof. Abigail Sussman, & Prof. Oleg Urminsky.
- 2023-2024 **Senior Research Associate**, for Poppy Watson, UNSW Sydney
- Data analysis; hierarchical reinforcement learning modelling; manuscript writing
- 2019-2021 **Research Assistant**, for Ben Newell, UNSW Sydney
- Designing and programming experiments; data analysis; manuscript writing

Research

Working Papers

Embrey, J. R. & Krefeld-Schwalb, A. (*in prep*) Cognitive ability affects the coherence between preference estimates.

Journal Publications

Embrey, J. R. & Inzlicht, M. (2025) Are metabolic costs needed to explain cognitive fatigue? *Trends in Cognitive Sciences*.

Embrey, J. R., Garner, K.G, Salim, J., & Watson, P. (2025) Modelling Pavlovian bias in depressed and healthy adolescents. *Neurobiology of Learning and Memory*

Newell, B.R., Bateman, H., Dobrescu, L., **Embrey, J. R.**, Nian, R., & Thorp, S., (2025) Undefined benefit: Projections and anchors as guides to retirement decumulation. *Journal of Behavioral and Experimental Finance*

Schulze, C., Aka, A., Bartels, D. M., Bucher, S. F., **Embrey, J. R.**, Gureckis, T. M., Haeubl, G., Ho, M. K., Krajbich, I., Moore, A. K., Oettingen, G., Ongchoco, J. D. K., Oprea, R., Reinholtz, N., & Newell, B. R. (2025) A Timeline of Cognitive Costs in Decision Making. *Trends in Cognitive Sciences*

Embrey, J. R., Mason, A., Donkin, C., & Newell, B. R. (2025) On-task errors drive effort avoidance more than opportunity costs. *Journal of Experimental Psychology: General*

Embrey, J. R., Mason, A., & Newell, B. R. (2024) Too hard, too easy, or just right? The effect of context on effort and boredom aversion. *Psychonomic Bulletin & Review*, 31, 2801–2810

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Embrey, J. R., Li, A. X., Liew, S. X., & Newell, B. R. (2024). The effect of non-instrumental information on reward learning. *Memory & Cognition*, 52(5), 1210-1227.

Embrey, J. R., Donkin, C., & Newell, B. R. (2023). Is all mental effort equal? The role of cognitive demand-type on effort avoidance. *Cognition*, 236, 105440

Liew, S., **Embrey, J. R.,** & Newell, B. R. (2023). The non-unitary nature of information preference. *Psychonomic Bulletin & Review*, 30, 1966-1974.

Liew, S., **Embrey, J. R.,** Navarro, D., & Newell, B. R. (2023). Comparing anticipation and uncertainty-penalty accounts of non-instrumental information seeking. *Decision*, 10(3), 247-267

Conference Papers

Embrey, J. R., Donkin, C., & Newell, B. (2022). Does mental effort avoidance depend on the ‘type of effort’? *Proceedings of the 44th annual conference of the cognitive science society*, 44, 2803-2809.

Embrey, J. R., Liew, S. X., Ghai, I., & Newell, B. (2021). The effect of uncertainty and outcome probability on non-instrumental information seeking. *Proceedings of the 43rd Annual Conference of the Cognitive Science Society*, 43, 1257-1263.

Embrey, J. R., Liew, S. X., Navarro, D., & Newell, B. R. (2020). Do you want to know a secret? The role of valence and delay in early information preference. *Proceedings of the 42nd annual conference of the cognitive science society*, 42, 273-279.

Selected Conference and Invited Presentations

Embrey, J. R., Mason, A., Donkin, C., & Newell, B. R. (October, 2025). Why is cognition costly?

- McGill University, Cognition Lab
- University of Chicago, Cognitive Psychology group

Embrey, J. R., Mason, A., Donkin, C., & Newell, B. R. (March, 2024). The costs of thinking

- UCL Experimental Psychology Lab, London.
- Warwick Business School Behavioural Science Lab, Warwick.
- University of Zurich Cognitive Psychology Lab, Zurich.

Embrey, J. R., Mason, A., Donkin, C., & Newell, B. R. (March, 2024). The effect of opportunity costs on cognitive effort.

- TeaP 2024, Regensburg, Germany.

Embrey, J. R., Mason, A., Donkin, C., & Newell, B. R. (February, 2024). The effect of opportunity costs on cognitive effort.

- Australian Mathematical Psychology Conference, UWA, Perth.

Embrey, J. R., Mason, A., & Newell, B. R. (March, 2023) The effect of context on effort and boredom aversion

- Ross Otto Lab, McGill University, Montreal (Virtual)

Embrey, J. R., Donkin, C., & Newell, B. R. (February, 2022) Does mental effort avoidance depend on the ‘type of effort’?

- Australian Mathematical Psychology Conference, Brisbane (Virtual).

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Selected Awards and Prizes

2024	Dean's Award for Outstanding PhD Thesis, UNSW Sydney
2024	Douglas Vickers Outstanding Presentation Award (Best Student Presentation at Australasian Mathematical Psychology Conference)
2023	3-Minute Thesis (3MT) Competition; UNSW: Finalist
2023	1-Minute Thesis (1MT) Competition; Faculty of Science, UNSW: Winner of Best Talk in School of Psychology (\$500 AUD)

Travel awards

2024	Development and Research Training Grant (\$1500 AUD)
2022	Development and Research Training Grant (\$1500 AUD)

Teaching

2021-2024	Cognitive Science (Tutor/Seminar Lead), UNSW Sydney
2021-2024	Psychology Capstone Course (Tutor/Seminar Lead), UNSW Sydney
2023-2024	Development Psychology (Tutor/Seminar Lead), UNSW Sydney
2023	Undergraduate R Coding Course (Head Tutor), UNSW Sydney
2021-2024	Research Methods 2 (Tutor/Seminar Lead), UNSW Sydney

Technical Skills and Training

Programming: R (incl. JAGS, STAN), Javascript, jsPsych, Matlab (basic), Python (basic).

Technical: Computational modeling (incl. hierarchical Bayesian methods); strong frequentist and Bayesian statistics skillset.

Workshops: Bounded Rationality Summer Institute (MPI, Berlin, 2022); Computational Modeling of Cognition Summer School (Poland, 2022).

Reviewing

Ad hoc manuscript reviewer: Journal of Experimental Psychology: General, Cognition, Psychonomic Bulletin & Review, Consciousness and Cognition, Computers in Human Behaviour, PLOS One, Acta Psychologica.