Neil Robert Bramley

Curriculum Vitae

Academic experience

2019–present **Lecturer in Cognitive Psychology**, *Department of Psychology*, University of Edinburgh, Scotland.

2017–2018 **Moore-Sloan Postdoc**, *Psychology Department & Data Science Center*, New York University, New York, NY, USA.

2015 **Visiting Researcher**, *Computational Cognitive Science labs*, USA.
Bogue Fellowship funded research visit to three research groups: Tom Griffiths' (Berkeley), Josh Tenenbaum's (MIT) and Todd Gureckis' (NYU).

2011–2012 **Research Assistant**, *Biological and Experimental Psychology*, Queen Mary, University of London, England.

Education

2013–2017 **PhD, Experimental Psychology**, *UCL*, London.
Title: Constructing the world: Active causal learning in cognition
Supervisors: Prof David Lagnado & Prof Peter Dayan
Winner 2017 BPS Award for Outstanding Doctoral Research

2012–2013 **MRes, Computer Science**, *UCL*, London.

2010–2011 **MSc, Cognitive & Decision Sciences**, *UCL*, London.

2005–2009 **MA (Hons), Philosophy**, *University of Glasgow*, Glasgow.

Publications

Forthcoming

1. **Bramley**, N. R., T. Gerstenberg, R. Mayrhofer, and D. A. Lagnado (in press). "Intervening in time". In: *Time and Causality in the Sciences (edited volume)*. Ed. by S. Kleinberg.
2. Coenen, A., A. Ruggeri, N. R. **Bramley**, and T. M. Gureckis (in press). Testing one or multiple: How Beliefs about sparsity affect causal experimentation. *Journal of Experimental Psychology: Learning, Memory & Cognition*.

Peer reviewed articles

3. **Bramley**, N. R., T. Gerstenberg, R. Mayrhofer, and D. A. Lagnado (2018). Time in causal structure learning. *Journal of Experimental Psychology: Learning, Memory & Cognition*.

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4. **Bramley**, N. R., T. Gerstenberg, J. B. Tenenbaum, and T. M. Gureckis (2018). Intuitive experimentation in the physical world. *Cognitive Psychology* **195**, 9–38.
5. **Bramley**, N. R., A. Rothe, J. B. Tenenbaum, F. Xu, and T. M. Gureckis (2018). Grounding compositional hypothesis generation in specific instances. In: *Proceedings of the 40th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
6. Davis, Z. J., N. R. **Bramley**, and R. E. Rehder (2018). Causal structure learning with continuous variables in continuous time. In: *Proceedings of the 40th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
7. Davis, Z. J., N. R. **Bramley**, R. E. Rehder, and T. M. Gureckis (2018). A causal model approach to dynamic control. In: *Proceedings of the 40th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
8. Meng, Y., N. R. **Bramley**, and F. Xu (2018). Children's causal interventions combine discrimination and confirmation. In: *Proceedings of the 40th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
9. **Bramley**, N. R., P. Dayan, T. L. Griffiths, and D. A. Lagnado (2017). Formalizing Neurath's ship: Approximate algorithms for online causal learning. *Psychological Review* **124**(3), 301–338.
10. **Bramley**, N. R., R. Mayrhofer, T. Gerstenberg, and D. A. Lagnado (2017). Causal learning from interventions and dynamics in continuous time. In: *Proceedings of the 39th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
11. Coenen, A., N. R. **Bramley**, A. Ruggeri, and T. M. Gureckis (2017). Beliefs about sparsity affect causal experimentation. In: *Proceedings of the 39th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
12. Schulz, E., E. D. Klenske, N. R. **Bramley**, and M. Speekenbrink (2017). Strategic exploration in human adaptive control. In: *Proceedings of the 39th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
13. **Bramley**, N. R., T. Gerstenberg, and J. B. Tenenbaum (2016). Natural science: Active learning in dynamic physical microworlds. In: *Proceedings of the 38th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society, pp.2567–2573.
14. McCormack, T., N. R. **Bramley**, C. Frosch, F. Patrick, and D. A. Lagnado (2016). Children's Use of Interventions to Learn Causal Structure. *Journal of Experimental Child Psychology* **141**, 1–22.
15. **Bramley**, N. R., P. Dayan, and D. A. Lagnado (2015). Staying afloat on Neurath's boat: Heuristics for sequential causal learning. In: *Proceedings of the 37th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society, pp.262–267.
16. **Bramley**, N. R., D. A. Lagnado, and M. Speekenbrink (2015). Conservative forgetful scholars: How people learn causal structure through interventions. *Journal of Experimental Psychology: Learning, Memory & Cognition* **41**(3), 708–731.
17. **Bramley**, N. R., T. Gerstenberg, and D. A. Lagnado (2014). The order of things: Inferring causal structure from temporal patterns. In: *Proceedings of the 36th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society, pp.236–242.

Posters

18. **Bramley**, N. R., J. D. Nelson, M. Speekenbrink, V. Crupi, and D. A. Lagnado (2014). *What should causal learners value?* Poster presented at the Annual Meeting of the Psychonomic Society.
19. **Bramley**, N. R., M. Speekenbrink, and D. A. Lagnado (2013). *Mechanisms of active causal learning*. Poster presented at the 35th Annual Meeting of the Cognitive Science Society.

Miscellaneous

20. **Bramley**, N. R. (2014). *Book Review: Future-Minded: The Psychology of Agency and Control by Magda Osman*. In: *The London School of Economics Review of Books*.

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Theses

21. **Bramley**, N. R. (2017). "Constructing the world: Active causal learning in cognition". PhD thesis. UCL.
22. **Bramley**, N. R. (2013). "Algorithms for active causal learning". MRes thesis, UCL.
23. **Bramley**, N. R. (2011). "Mechanisms of active causal learning". MSc thesis, UCL.

Supervision

Graduate student projects
Anselm Rothe (2017) – *Active learning strategies in the game Mastermind*
Ethan Ludwin–Peery (2017) – *Testing the assumptions of the intuitive physics theory*
Zach Davis (2017) – *Complex control with continuous variables in continuous time*
Zhiwei Li (2017) – *Predicting engagement via the temporal dynamics of belief, surprise and suspense*

Masters dissertations
Yves Wang, Galen Li, Cecilia Sun and Scarlett Liu (2018) – Capstone project on *Learning to actively learn about the physical world with deep reinforcement learning*.
Pablo León Villagrá (2015)– *Eliminating Markov violations by distinguishing structure and noise*
Alexandra Surdina (2014) – *Should I stay or should I go? Decisions under temporal uncertainty*
George Deane (2014) — *Integrated information theory: An empirical theory of phenomenal consciousness*

Grants

ESRC & NSF: SBE Lead Agency Framework
"Exploring the logic of discovery" – Computational Cognition, as co-PI with Professor Fei Xu, Berkeley (in revision)

Awards and Scholarships

£500 BPS Award for Outstanding Doctoral Research Contributions to Psychology (2017)
£500 EPS Grindley Grant (2016)
£1204 SLMS Graduate School Conference Fund (2016)
$500 Robert J. Glushko and Pamela Samuelson Foundation Award for top 20 student papers at CogSci (2015)
£1470 SLMS Graduate School Conference Fund (2015)
£3000 Bogue Research Fellowship from UCL funding 3 month visit to UC Berkeley and NYU in the USA (2015)
£79,600 London Centre for Financial Computing and Analytics 4-year EPSRC PhD scholarship (2012 – 2016)
£150 Award for best performing student in MSc Cognitive Decision Sciences (2011)

Invited talks

Aug 2018 Program Induction Workshop, CogSci2018, Madison, WI, USA
Apr 2018 Neuroscience Showcase, Center for Data Science, NYU, New York, NY, USA
Mar 2018 Center for Data Science lunchtime series, NYU, New York, NY, USA
Mar 2018 Psychology colloquium, UC Berkeley, Berkeley, CA, USA
Feb 2018 Psychology colloquium, UC Irvine, Costa Mesa, CA, USA
Oct 2017 Tenenbaum Lab, MIT, Cambridge, MA, USA
Aug 2017 ILCC series, Informatics Forum, University of Edinburgh, UK
Mar 2017 ConCats, NYU, New York, NY

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Mar 2016 Summerfield lab, Experimental Psychology, University of Oxford, UK
Oct 2015 London Judgment and Decision Making Group, UCL, London, UK
Jul 2015 Decision Making Symposium, Birkbeck, London, UK
Mar 2015 Computational Cognitive Science Lab, UC Berkeley, CA, USA
Feb 2015 Centre for Logic, Language and Cognition, University of Turin, Italy
May 2014 Max Planck Institute for Human Development, Berlin, Germany

Conference & Workshop Presentations

Oct 2018 Moore Sloane Data Science Summit, Park City, UT, USA
Oct 2017 Moore Sloane Data Science Summit, New Orleans, LA, USA
Jul 2017 CogSci2017, London, UK
May 2017 TaCitS, Hoboken, New Jersey
Feb 2017 Gureckis lab talk, NYU, New York, NY, USA
Aug 2016 CogSci2016, Philadelphia, PA, USA
Aug 2016 ICT16, Brown University, Providence, RI, USA
Aug 2015 CogSci2015, Pasadena, CA, USA
Jul 2014 Decision making Bristol, University of Bristol, UK
Jul 2013 SPUDM24, ISCE, Barcelona, Spain
Jul 2013 MathPsych, Potsdam, Germany
Mar 2012 TeaP (Conference on Experimental Psychology), Mannheim, Germany
Feb 2012 Causality Workshop, Causal Cognition Group, UCL, London, UK
Aug 2011 Causality Workshop, Causal Cognition Group, UCL, London, UK
Mar 2011 English Graduate Conference on Lies and Deception, UCL, London, UK

Symposia and conferences organised

Aug 2018 "Learning as Program induction" CogSci018, Madison, Wisconsin
Discussants: Josh Tenenbaum, Fei Xu, Laura Schulz, Noah Goodman, Steven Piantadosi, Marie Almaric, Eric Schulz, Neil Bramley, Ishita Dasgupta, Josh Rule, Lucas Morales

Aug 2016 "Beyond Bayes nets" ICT16, Brown University
Discussants: James Woodward, Anna Coenen, Neil Bramley, Elias Bareinboim and Steven Sloman

Sep 2013 "Forecasting, monitoring, controlling: Dealing with a dynamic world", UCL
One day conference featuring Brad Love, Magda Osman, Nigel Harvey, Stephan Lewandowsky, Stian Reimers and many others

Professional service

2012–present **Reviewer**.
Cognition (2), *Psychological Science* (2), *JEP: General* (1), *JEP: Learning, Memory & Cognition* (6), *Memory & Cognition* (4), *Cognitive Science* (4), *Topics in Cognitive Science* (2), *Journal of Behavioral Decision Making* (1), *Experimental Psychology* (1), *Quarterly Journal of Experimental Psychology* (1), *Open Mind* (1), *PloS One* (1), *CogSci Conference* (10).

2017–2018 **Seminar series organizer**, *NYU*, New York, NY.
ConCats (Concepts and categories)

2012–2016 **Seminar series organizer**, *UCL*, London, UK.
LJDM (London Judgment and Decision Making)

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Computer skills

Modelling / statistics	C, Cogent, Lisp, Julia, Jupyter, Mathematica, MATLAB, Python, Pytorch, R, Scikit Learn, SPSS, Stan, Tensor Flow, WebPPL, WinBUGS
Web development	AWS, ActionScript, Box2D, CSS, Flash, Flex, HTML5, Hugo, Git, Java, Javascript, Jekyll, Perl, PHP, PsiTurk, Ruby, SQL
Misc	Illustrator, LaTeX, Sublime, Microsoft Office

Languages

English	**Native**
Spanish	**Intermediate**
German	**Basic**

References

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(more available upon request)