



# Neil Robert Bramley

## Curriculum Vitae

### Academic experience

- 2019–present **Lecturer in Cognitive Psychology**, *Department of Psychology, School of Philosophy Psychology and Language Sciences, University of Edinburgh, Scotland.*
- 2017–2018 **Moore-Sloan Postdoc**, *Psychology Department & Center for Data Science, New York University, New York, NY, USA.*
- 2015 **Visiting Researcher**, *CoCoSci Lab, Department of Psychology, University of California, Berkeley, USA.*
- 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

- Li, S., Y. Sun, S. Liu, T. Wang, T. M. Gureckis, and N. R. **Bramley** (submitted). Active physical inference via reinforcement learning. In: *Proceedings of the 41st Annual Meeting of the Cognitive Science Society*. Ed. by A. Goel, C. Seifert, and C. Freksa.
- Li, Z., N. R. **Bramley**, and T. M. Gureckis (submitted). The fateful moment is coming: Modeling the dynamics of suspense. In: *Proceedings of the 41st Annual Meeting of the Cognitive Science Society*. Ed. by A. Goel, C. Seifert, and C. Freksa.
- Ludwin-Peery, E. J., N. R. **Bramley**, E. Davis, and T. M. Gureckis (submitted). Limits on the Use of Simulation in Physical Reasoning. In: *Proceedings of the 41st Annual Meeting of the Cognitive Science Society*. Ed. by A. Goel, C. Seifert, and C. Freksa.
- 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.

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5. 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

6. **Bramley**, N. R., T. Gerstenberg, R. Mayrhofer, and D. A. Lagnado (2018). Time in causal structure learning. *Journal of Experimental Psychology: Learning, Memory & Cognition*.
7. **Bramley**, N. R., T. Gerstenberg, J. B. Tenenbaum, and T. M. Gureckis (2018). Intuitive experimentation in the physical world. *Cognitive Psychology* **195**, 9–38.
8. **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 40<sup>th</sup> Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
9. Davis, Z. J., N. R. **Bramley**, and R. E. Rehder (2018). Causal structure learning with continuous variables in continuous time. In: *Proceedings of the 40<sup>th</sup> Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
10. 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 40<sup>th</sup> Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
11. Meng, Y., N. R. **Bramley**, and F. Xu (2018). Children's causal interventions combine discrimination and confirmation. In: *Proceedings of the 40<sup>th</sup> Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
12. **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.
13. **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 39<sup>th</sup> Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
14. Coenen, A., N. R. **Bramley**, A. Ruggeri, and T. M. Gureckis (2017). Beliefs about sparsity affect causal experimentation. In: *Proceedings of the 39<sup>th</sup> Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
15. Schulz, E., E. D. Klenske, N. R. **Bramley**, and M. Speekenbrink (2017). Strategic exploration in human adaptive control. In: *Proceedings of the 39<sup>th</sup> Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
16. **Bramley**, N. R., T. Gerstenberg, and J. B. Tenenbaum (2016). Natural science: Active learning in dynamic physical microworlds. In: *Proceedings of the 38<sup>th</sup> Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society, pp.2567–2573.
17. 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.
18. **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 37<sup>th</sup> Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society, pp.262–267.
19. **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.
20. **Bramley**, N. R., T. Gerstenberg, and D. A. Lagnado (2014). The order of things: Inferring causal structure from temporal patterns. In: *Proceedings of the 36<sup>th</sup> Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society, pp.236–242.

Posters

21. **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.

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22. **Bramley**, N. R., M. Speekenbrink, and D. A. Lagnado (2013). *Mechanisms of active causal learning*. Poster presented at the 35<sup>th</sup> Annual Meeting of the Cognitive Science Society.

#### Miscellaneous

23. **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*.

#### Theses

24. **Bramley**, N. R. (2017). "Constructing the world: Active causal learning in cognition". PhD thesis. UCL.
25. **Bramley**, N. R. (2013). "Algorithms for active causal learning". MRes thesis, UCL.
26. **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 Villagrà (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: "Exploring the logic of discovery" – Computational Cognition, as co-PI with Professor Fei Xu,  
SBE Lead Berkeley (in revision)  
Agency  
Framework

### 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

Feb 2019 CDT Pizza, University of Edinburgh, Scotland  
Feb 2019 Human Cognitive Neuroscience Seminar, University of Edinburgh, Scotland  
Aug 2018 Program Induction Workshop, CogSci2018, Madison, WI, USA

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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  
 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)

## 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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Thomas Griffiths  
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