



# Neil Robert Bramley

## Curriculum Vitae

### 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.**  
Project grade: Distinction (84/100)  
Overall grade: Merit (80/100)
- 2010–2011 **MSc, Cognitive & Decision Sciences, UCL, London.**  
Project grade: Distinction (90/100)  
Overall grade: Distinction & class prize (86/100)
- 2005–2009 **MA (Hons), Philosophy, University of Glasgow, Glasgow.**  
Dissertation grade: 19/22  
Overall grade: 17/22

### Academic experience

- 2017–present **Moore-Sloan Postdoctoral Associate, NYU, New York, NY.**
- Conducting research into human cognition
  - Combining behavioral experimentation, modeling & big data
  - Associated with Cognition and Computation lab and NYU Center for Data Science
  - Funded by Moore-Sloan Data Science Environment
- 2016 **Programme participant, University of Cambridge, Cambridge, UK.**  
“Probability and Statistics in Forensic Science” (summer school length) workshop at the Isaac Newton Institute for Mathematical Sciences
- 2015 **Visiting researcher, UC Berkeley, Berkeley, CA, USA.**  
Bogue fellowship funded research visit to Tom Griffiths’ Computational Cognitive Science lab.
- 2015 **Visiting researcher, NYU / MIT, New York, NY / Cambridge, MA.**  
Bogue fellowship funded research visit to Josh Tenenbaum’s Computational Cognitive Science lab and Todd Gureckis’ Computation and Cognition lab.

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🐦 [NeilBramley](https://twitter.com/NeilBramley) • 🌐 [neilbramley](https://neilbramley.com)

2011–2012 **Research assistant**, *Queen Mary, University of London*, London, UK.

Biological & Experimental Psychology Group

Responsibilities:

- Designing and programming pilot experiments for grant application
- Writing an (ultimately successful) ESRC grant application “Cognitive causal models of dynamic control”
- Securing endorsements from major UK energy regulators and suppliers

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## Teaching experience

2012–2016 **Lecturer**, *UCL*, London, UK.

Ad-hoc lecturer for MSc, MRes psychology and cognitive science courses while studying for PhD at UCL

Topics taught:

- PSYCGD04: Knowledge, Learning & Inference, Experimental Psychology
  - Active learning (2014, 2016)
- PSYC1103: Introduction to Psychological Experimentation, Experimental Psychology
  - Causal representation (2015)
- PSYCGD01: Philosophy of Cognitive Science, Experimental Psychology
  - Theories of consciousness (2013)
  - Integrated information theory (2014, 2015)

2011–2014 **Teaching assistant**, *UCL*, London, UK.

Courses:

- PSYCGD05 Programming for Cognitive Science (MATLAB, python, javascript)
- PSYCGR01 Generic Research Skills (statistics)
- PSYCH1103 First Year Psychology Laboratory

Responsibilities:

- Leading tutorials
- Providing in class support
- Marking, holding office hours

2011–2016 **Private tuition**, *UCL*, London, UK.

Private statistics and programming tuition at MSc level for cognitive science students

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## Publications

### Forthcoming

1. Coenen, A., A. Ruggeri, N. R. **Bramley**, and T. M. Gureckis (in revision). Beliefs about sparsity affect causal experimentation.
2. **Bramley**, N. R., T. Gerstenberg, R. Mayrhofer, and D. A. Lagnado (in prep). Unifying intervention and time in causal learning. Ed. by J. Livengood.
3. **Bramley**, N. R., R. Mayrhofer, T. Gerstenberg, and D. A. Lagnado (in prep). Interventions in continuous dynamic systems.
4. Li, Z., N. R. **Bramley**, and T. Gureckis (in prep). Modeling engagement via the temporal dynamics of belief, surprise and suspense.
5. Schulz, E., M. Hofer, A. Rothe, N. R. **Bramley**, G. Kachergis, L. Bertram, V. Crupi, B. Meder, and J. D. Nelson (in prep). Charting the Landscape of Human Curiosity.

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### 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. <http://doi.org/10.17605/osf.io/u9y4c>. *Cognitive Psychology*.
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.

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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.
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

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|---------------------------|--|
| Graduate student projects | <p>Anselm Rothe (2017) – <i>Active learning strategies in the game Mastermind</i></p> <p>Ethan Ludwin–Peery (2017) – <i>Testing the assumptions of the intuitive physics theory</i></p> <p>Zach Davis (2017) – <i>Complex control with continuous variables in continuous time</i></p> <p>Zhiwei Li (2017) – <i>Predicting engagement via the temporal dynamics of belief, surprise and suspense</i></p> |
| Masters dissertations     | <p>Pablo León Villagrà (2015)– <i>Eliminating Markov violations by distinguishing structure and noise</i></p> <p>Alexandra Surdina (2014) – <i>Should I stay or should I go? Decisions under temporal uncertainty</i></p> <p>George Deane (2014) — <i>Integrated information theory: An empirical theory of phenomenal consciousness</i></p>   |

## Grants

- NSF “Exploring the logic of discovery” – Computational Cognition, as co-PI with Professors Fei Xu and Tom Griffiths, Berkeley (in revision)

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## 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

- April 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 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

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- 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.**  
*Journal of Experimental Psychology: General* (1), *Cognition* (1), *Psychological Science* (1), *Journal of Experimental Psychology: Learning, Memory & Cognition* (6), *Memory & Cognition* (4), *Cognitive Science* (3), *Topics in Cognitive Science* (1), *Journal of Behavioral Decision Making* (1), *Experimental Psychology* (1), *Quarterly Journal of Experimental Psychology* (1), *Open Mind* (1), *Annual Meeting of the Cognitive Science Society* (10).
- 2017–present **Seminar series organizer, NYU, New York, NY.**  
ConCats (Concepts and categories) series in Psychology department.  
Responsibilities:
  - Inviting and hosting speakers
- 2012–2016 **Seminar series organizer, UCL, London, UK.**  
London Judgment and Decision Making Seminar Series  
Responsibilities:
  - Inviting and hosting speakers
  - Managing a small budget

## Computer skills

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

## Languages

- English **Native**

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Spanish **Intermediate**

German **Basic**

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## References

### Prof David Lagnado

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### Prof Todd Gureckis

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### Prof Peter Dayan

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### Prof Thomas Griffiths

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Department of Psychology  
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