

**CURRICULUM VITAE**  
**BRADLEY C. LOVE**  
(July, 2024)

**Contact Information**

Post                      University College London  
                                 Experimental Psychology  
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                                 London, UK WC1H 0AP

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Citizenship             US and UK

**EDUCATION**

Ph.D. in Cognitive Psychology  
Northwestern University, Evanston, IL

B.S. Cognitive and Linguistic Sciences  
Brown University, Providence, RI

**POSITIONS**

2020-2021              Programme Leader in Human-Machine Teams at the Alan Turing Institute

2016 -                    Inaugural Turing Fellow at the Alan Turing Institute

2011 -                    Professor of Cognitive and Decision Sciences at University College London (UCL)

2010 - 2011            Full Professor in Psychology  
                                 The University of Texas at Austin

2005 – 2010            Associate Professor in Psychology  
                                 The University of Texas at Austin

1999 – 2005            Assistant Professor in Psychology  
                                 The University of Texas at Austin

**GRANTS, FELLOWSHIPS, AND HONORS**

2/2024                    Donation to UCL from tech leader (wishing to remain anonymous) to fund the BrainGPT project.

9/2023                    Microsoft’s Accelerating Foundation Models Research program, “BrainGPT: An open-source tool to accelerate neuroscience research using Llama2 and LoRA”.

8/2022                    ESRC Grant, “Next Generation Psychological Embeddings”.

8/2020                    Best paper award, *Computational Brain & Behavior* for Hornsby et al. (2020).

9/2019                    ELLIS.eu Fellow in the Natural Intelligence Programme

5/2019 Royal Society Wolfson Fellowship, "Integrating Embedding Spaces".

10/2018 Turing Institute flagship project with Intel.

7/2018 ESRC fellowship funding for a PhD studentship in AI.

6/2016 National Institute of Health P01 (linked R01s), "Linking Brain, Behavior, and Development: Integrative Models of Category Learning."

3/2016 Inaugural Fellow at the Alan Turing Institute for data science.

6/2015 Wellcome Trust Senior Investigator Award, "Neural and Computational Mechanisms of Categorisation."

12/2014 Fellow, APS.

6/2014 The Leverhulme Trust, "Circumventing Limits in Memory Retrieval."

5/2014 Membership (elected) to the Memory Disorders Research Society.

9/2012 IMPACT fellowship award (dunnhumby corporation and UCL).

8/2012 Wellcome Trust New Start Equipment Award.

1/2012 Fellow, Psychonomic Society.

5/2011 NIH proposal R21 MH091523-01A1 "Model-Based fMRI of Dynamic Category Learning: The Memory and Attention Interface."

5/2010 AFOSR Gant #FA9550-10-1-0268, "A Dynamic Approach to Information Sampling and Learning."

9/2009 NSF Grant #0927315 (Co-PI, PI 2011-), "Predicting Disrupted Network Behavior."

7/2009 ARL Grant #W911NF-09-2-0038, "A Computational Learning Approach to Adaptive Information Displays for Enhancing Soldier Performance."

5/2007 AFOSR Grant #FA9550-07-1-0178, "Category Learning by Clustering with Extension to Dynamic Environments."

1/2007 ARL Grant #W911NF-07-2-0023 Love (Co-PI), "Sustaining and Enhancing High Optempo Performance of Soldiers in the Transformed Military."

6/2004 AFOSR Grant #FA9550-04-1-0226, "Maximizing the Benefits of Training by Example and Direct Instruction."

4/2004 NSF CAREER Grant #0349101, "Flexible learning inside and outside the classroom."

12/2002 Awarded (along with Ahn, Goldstone, Markman, and Wolff) by the APA to host a conference honouring Doug Medin.

6/2002 Admitted and attended the APA's summer institute in fMRI at Harvard-MGH.

- 2/2002 J. S. McDonnell Foundation grant titled “Interdisciplinary Collaborative Consortium on the Cognitive Neuroscience of Category Learning.” I am one of numerous co-investigators (Mark Gluck is the PI).
- 5/2001 AFOSR Grant #F49620-01-1-0295, “Adaptive Learning Across Task Environments.”
- 4/1996 Graduate Fellowship, NDSEG.
- 4/1996 National Science Foundation Graduate Fellowship.

## SERVICE TO FIELD

- journals *Acta Psychologica; Attention, Perception, & Psychophysics; Artificial Intelligence; Australian Journal of Psychology; Behavioral and Brain Sciences; Behavior Research Methods; Cell Reports; Cerebral Cortex; Cognition; Cognitive Psychology (Associate Editor 2014-2017); Cognitive Science (Editorial Board 2006-2009); Current Directions in Psychological Science; eLife; Experimental Psychology; Decision; Frontiers in Cognitive Science (Editorial Board 2012-2014); Frontiers in Developmental Psychology (Editorial Board 2010-2014); Human Brain Mapping; International Journal of Science and Mathematics Education (Special Issue Editor, 2012-2014); JARMAC; Journal of Experimental Child Psychology; Journal of Cognitive Psychology; Journal of Experimental Psychology: General; Journal of Experimental Psychology: Human Perception and Performance; Journal of Experimental Psychology: Language, Cognition and Neuroscience; Learning, Memory, and Cognition (Editorial Board 2006-2009); Journal of Experimental Social Psychology; Journal of Mathematical Psychology (Special Issue Editor 2014-2015); Journal of Memory and Language; Journal of Neuroscience; Journal of Vision; Journal of Vision; Language and Cognitive Processes; Language, Cognition and Neuroscience; Memory & Cognition (Editorial Board 2006-2009; Associate Editor 2009-2012); Nature; Nature Communications; Nature Human Behaviour; Nature Machine Intelligence; Neural Computation; Neural Networks; Neurobiology of Learning and Memory; NeuroImage; Neurons, Behavior, Data analysis, and Theory; Perception & Psychophysics; Perspectives on Psychological Science; PLoS Computational Biology; PLoS ONE; Proceedings of the National Academy of Sciences; PNAS Nexus; Psychological Bulletin; Psychological Review; Psychological Science; Psychonomic Bulletin and Review (Editorial Board 2006-2010); Science; Science Advances; Scientific Reports; Trends in Cognitive Sciences; Quarterly Journal of Experimental Psychology; Visual Cognition; Wiley Interdisciplinary Reviews.*
- conferences AAI 2006 (senior program committee member); Biologically Inspired Cognitive Architecture (BICA); FLAIRS; ICCM; ICLR; ICONIP; NIPS; Awards Chair of 2007 Cognitive Science Society annual conference; **Co-Chair of 2008 Cognitive Science Society annual conference**, Cognitive Science Society Program Committee member (various years); Expert Panel for IEEE VIS 2020 Workshop on Visualization Psychology; Organiser for ICML 2022 Workshop on Human-Machine Collaboration and Teaming.
- grants AFOSR’s Perception & Cognition Program; ANR (France); BBSRC; Canada Foundation for Innovation; Deutsche Forschungsgemeinschaft (DFG) “Clusters of Excellence” panel member; EPSRC, ESRC; ESRC Rapporteur; EU Human Brain Project panel member (2014); FONDECYT Sicologia

(Chile); FNR (Luxembourg); FNRS (Belgium); FWO (Belgium); Leverhulme Trust; MRC; NASA's Intelligent Systems (Human-Centered Computing); National Endowment for the Humanities; Israeli Science Foundation panel member (2011), National Endowment for the Humanities; NIMH Cognition, Language, and Perception (Fellowship) panel member (2006-2007); National Science Foundation (Cognitive Neuroscience); National Science Foundation Perception, Action, and Cognition panel member (2005-2007); National Science Foundation program evaluator (2012) for UCSD Science of Learning Center; NSERC (Canada); National Science Foundation (Decision, Risk and Management Sciences); Research Council of Leuven (Belgium); Royal Society; UKRI Future Leaders Fellowships; University of Texas at Austin Research Internship (RI) fellowship, the Wellcome Trust.

other

Advisory board of IEEE VIS2020 Workshop of Visualization Psychology; Assisting Brain Imaging Data Structure (BIDS) group extend standard to computational modelling; Comment of House of Lords request for feedback on how government should regulate Artificial Intelligence; Consultant for BBC Horizon (2014-2015, Episode 19) "Are Video Games Really That Bad?"; Outside evaluator on tenure and promotion cases, and Ph.D. dissertations. Consultant for Charles A. Dana Center academic youth development program. Royal Society mentoring programme. Air Force AMBR project expert panel member (2002-2004), program committee member for FLAIRS 2002 Special Track "Categorization and Concept Representation: Models and Implications"; Program evaluation for Oxford's new Social Data Science programme; Program evaluation for Kingston's new Decision Sciences MSc programme; Consultant on Scientific Content of BBC Horizon episode (2015); Programme evaluation for Oxford Internet Institute's newly proposed MSc (2017), Programme evaluation for Warwick new Psychology and Data Science MSc (2016); Consultant for Ofgem, dunnhumby, the Take Five (<https://takefive-stopfraud.org.uk/>) public service; REF consultant for WBS; Advisory Board NSF project Learning Preferences and Domain Differences in Design Fixation (2020-2024).

## UNIVERSITY SERVICE

Mentor for UCL PALS programme (2023- )

Mentor for Research Fellows at Turing (2017- )

Royal Society Mentorship Scheme (2021- )

Faculty of Brain Sciences IT Committee (2020- )

Deputy Chair (2014-2019)

Head of the Cognitive Systems Area at Texas (2007-2011)

Many Masters and Ph.D. committees.

Member of numerous committees.

## ADVISING

Postdoctoral

Christiane Ahlheim (2016-2018, now at Google)

Daniel Barry (2019-2022, now an Editor at *Nature Communications*)  
Sebastian Bobadilla-Suarez (2017-2021, now at a startup)  
Kurt Braunlich (2016-2019, now at NIH)  
Johan Carlin (2016-2017, now Cambridge CBU)  
Gyslain Giguere (2009-2013, now a U. of Montreal)  
Olivia Guest (2017-2020, now Asst. Prof at Donders)  
Aaron Hoffman (2007- 2011)  
Matthew Jones (2003-2007, now U. of Colorado Assoc. Prof.)  
Xiaoliang “Ken” Luo (2023-)  
Mike Mack (2011- 2016, now U. of Toronto Assoc. Prof)  
Rob Mok (2017-2020, now a lecturer/asst prof at Royal Holloway)  
Brett Roads (2018-)  
Nick Sexton (2019-2022)

## Graduate

Eric Abel (2009-2010)  
Kaarina Aho (2020-2023, now a research scientist at dunnhumby)  
Sebastian Bobadilla-Suarez (2013-2017, now at startup)  
Franziska Bröker (2019-2022, secondary advisor, now postdoc at CMU)  
Nikolay Dagaev (2021- )  
Tyler Davis (2005-2010, now Texas Tech Assoc. Prof.)  
John Dennis (2003-2004)  
Brian Glass (2011-2012)  
Todd M. Gureckis (2001-2005, now NYU Full Prof.)  
Laura Holland (2008-2009)  
Adam Hornsby (2016-2022, senior data scientists at dunnhumby)  
Lukas Kopec (2012-2016)  
Levi Larkey (2002-2003)  
Xiaoliang “Ken” Luo (2018-2022, now postdoc at UCL)  
Ross Otto (2007-2012, now McGill Assoc. Prof.)  
Katie Parker (2013-2016)  
Paula Parpart (2012-2017, now postdoc at Oxford)  
Guglielmo Reggio (2023-)  
Peter Riefer (2012-2016, senior data scientist at Deliveroo)  
Yasuaki Sakamoto (2000-2005, now Research Asst. Prof. at Stevens Institute of Technology)  
Katherine Snyder (2007-2008)  
Marc Tomlinson (2004-2010)  
Anne Warlaumont (2006-2007)

A lot (5+ per year) of MSc and BSc students (2012-)

## PUBLICATIONS

Luo, X., Rechart, A., Sun, G., Nejad, K. K., Yáñez, F., Yilmaz, B., Lee, K., Cohen, A. O.,

Borghesani, V., Pashkov, A., Marinazzo, D., Nicholas, J., Salatiello, A., Sucholutsky, I.,

Minervini, P., Razavi, S., Rocca, R., Yusifov, E., Okalova, T., ... Love, B. C. (2024).

*Large language models surpass human experts in predicting neuroscience results.*

<https://doi.org/10.48550/ARXIV.2403.03230>

- Poldrack, Russell A., Christopher J. Markiewicz, Stefan Appelhoff, Yoni K. Ashar, Tibor Auer, Sylvain Baillet, Shashank Bansal, et al. (2024). The Past, Present, and Future of the Brain Imaging Data Structure (BIDS). *Imaging Neuroscience*.
- Mack, M. L., Love, B. C., & Preston, A. R. (2024). *Distinct hippocampal mechanisms support concept formation and updating*. <https://doi.org/10.1101/2024.02.14.580181>
- Luo, X., Mok, R. M., & Love, B. C. (2024). The inevitability and superfluousness of cell types in spatial cognition. *bioRxiv*, 2024.01.10.575026.  
<https://doi.org/10.1101/2024.01.10.575026>
- Aho, K., Roads, B.D., & Love, B. C. (2023). Signatures of cross-modal alignment in children's early concepts. *PNAS*. <https://doi.org/10.1073/pnas.2309688120>
- Sucholutsky, Iliia, Lukas Muttenthaler, Adrian Weller, Andi Peng, Andreea Bobu, Been Kim, Bradley C. Love, et al. 'Getting Aligned on Representational Alignment', 2023.  
<https://doi.org/10.48550/ARXIV.2310.13018>.
- Xin-Ya Zhang, Sebastian Bobadilla-Suarez, Xiaoliang Luo, Marilena Lemonari, Scott L. Brincat, Markus Siegel, Earl K. Miller, & Bradley C. Love. (2023). Adaptive stretching of representations across brain regions and deep learning model layers. *bioRxiv*, 2023.12.01.569615. <https://doi.org/10.1101/2023.12.01.569615>
- Sasse, L., Nicolaisen-Sobesky, E., Dukart, J., Eickhoff, S. B., Götz, M., Hamdan, S., Komeyer, V., Kulkarni, A., Lahnakoski, J., Love, B. C., Raimondo, F., & Patil, K. R. (2023). *On Leakage in Machine Learning Pipelines*. <https://doi.org/10.48550/ARXIV.2311.04179>
- Love, B. C., & Mok, R. M. (2023). *You can't play 20 questions with nature and win redux* PsyArXiv (Behavioral and Brain Sciences commentary).  
<https://doi.org/10.31234/osf.io/xaemv>
- Roads, B. D., & Love, B. C. (2024). Modeling Similarity and Psychological Space. *Annual Review of Psychology*, 75(1), annurev-psych-040323-115131.  
<https://doi.org/10.1146/annurev-psych-040323-115131>

- Mok, R. M., & Love, B. C. (2023). A multilevel account of hippocampal function in spatial and concept learning: Bridging models of behavior and neural assemblies. *Science Advances*, 9(29), eade6903. <https://doi.org/10.1126/sciadv.ade6903>
- Hamdan, S., Love, B. C., von Polier, G. G., Weis, S., Schwender, H., Eickhoff, S. B., & Patil, K. R. (2023). Confound-leakage: Confound removal in machine learning leads to leakage. *GigaScience*, 12, giad071. <https://doi.org/10.1093/gigascience/giad071>
- Collins, K. M., Bhatt, U., Liu, W., Piratla, V., Sucholutsky, I., Love, B. C., & Weller, W. (2023). Human-in-the-Loop Mixup. Uncertainty in Artificial Intelligence (UAI). <https://openreview.net/forum?id=BW6oQ0qZl0EI>
- Broschard, M. B., Kim, J., Love, B. C., & Freeman, J. H. (2023). Dorsomedial striatum, but not dorsolateral striatum, is necessary for rat category learning. *Neurobiology of Learning and Memory*, 199, 107732. <https://doi.org/10.1016/j.nlm.2023.107732>
- Nanda, V., Majumdar, A., Kolling, C., Dickerson, J. P., Gummadi, K. P., Love, B. C., & Weller, A. (2023). Do Invariances in Deep Neural Networks Align with Human Perception? *Proceedings of the AAAI Conference on Artificial Intelligence*, 37(8), 9277–9285. <https://doi.org/10.1609/aaai.v37i8.26112>
- Dagaev, N., Roads, B. D., Luo, X., Barry, D. N., Patil, K. R., & Love, B. C. (2023). A too-good-to-be-true prior to reduce shortcut reliance. *Pattern Recognition Letters*, 166, 164–171. <https://doi.org/10.1016/j.patrec.2022.12.010>
- Aho, K., Roads, B. D., & Love, B. C. (2022). System alignment supports cross-domain learning and zero-shot generalisation. *Cognition*, 227, 105200. <https://doi.org/10.1016/j.cognition.2022.105200>
- Barry, D. N., & Love, B. C. (2022). A neural network account of memory replay and knowledge consolidation. *Cerebral Cortex*, bhac054. <https://doi.org/10.1093/cercor/bhac054>
- Bobadilla-Suarez, S., Jones, M., & Love, B. C. (2022). Robust priors for regularized regression. *Cognitive Psychology*, 132, 101444.
- Bröker, F., Love, B. C., & Dayan, P. (2022). When unsupervised training benefits category learning. *Cognition*, 221, 104984.

- Hornsby, A. N., & Love, B. C. (2022). Sequential consumer choice as multi-cued retrieval. *Science Advances*, 8(8), eabl9754. <https://doi.org/10.1126/sciadv.abl9754>
- Sexton, N. J., & Love, B. C. (2022). Reassessing hierarchical correspondences between brain and deep networks through direct interface. *Science Advances*, 8(28), eabm2219. <https://doi.org/10.1126/sciadv.abm2219>
- Barry, D. N., & Love, B. C. (2021). *Human learning follows the dynamics of gradient descent*. *PsyArxiv*.
- Braunlich, K., & Love, B. C. (2021). Bidirectional influences of information sampling and concept learning. *Psychological Review*. <https://doi.org/10.1037/rev0000287>
- Broschard, M. B., Kim, J., Love, B. C., & Freeman, J. H. (2021). Category learning in rodents using touchscreen-based tasks. *Genes, Brain and Behavior*, 20(1), e12665.
- Broschard, M. B., Kim, J., Love, B. C., Wasserman, E. A., & Freeman, J. H. (2021). Prelimbic cortex maintains attention to category-relevant information and flexibly updates category representations. *Neurobiology of Learning and Memory*, 185, 107524.
- Love, B. C. (2021). Levels of biological plausibility. *Philosophical Transactions of the Royal Society B*, 376(1815), 20190632.
- Love, B. C., & Roads, B. D. (2021). Similarity as a Window on the Dimensions of Object Representation. *Trends in Cognitive Sciences*, 25(2), 94–96.
- Luo, X., Roads, B. D., & Love, B. C. (2021). The costs and benefits of goal-directed attention in deep convolutional neural networks. *Computational Brain & Behavior*, 4(2), 213–230.
- Luo, X., Sexton, N. J., & Love, B. C. (2021). A deep learning account of how language affects thought. *Language, Cognition and Neuroscience*, 1–10.
- Roads, B. D., & Love, B. C. (2021). Enriching imagenet with human similarity judgments and psychological embeddings. *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 3547–3557.
- Smith, F. B., Roads, B. D., Luo, X., & Love, B. C. (2021). Understanding top-down attention using task-oriented ablation design. *ArXiv Preprint ArXiv:2106.11339*.



- Bickford Smith, F., Luo, X., Roads, B. D., & Love, B. C. (2020). The perceptual boost of visual attention is task-dependent in naturalistic settings. *ArXiv E-Prints*, arXiv-2003.
- Bobadilla-Suarez, S., Ahlheim, C., Mehrotra, A., Panos, A., & Love, B. C. (2020). Measures of neural similarity. *Computational Brain & Behavior*, 3(4), 369–383.
- Bobadilla-Suarez, S., Guest, O., & Love, B. C. (2020). Subjective value and decision entropy are jointly encoded by aligned gradients across the human brain. *Communications Biology*, 3(1), 1–9.
- Botvinik-Nezer, R., Holzmeister, F., Camerer, C. F., Dreber, A., Huber, J., Johannesson, M., Kirchler, M., Iwanir, R., Mumford, J. A., Adcock, R. A., & others. (2020). Variability in the analysis of a single neuroimaging dataset by many teams. *Nature*, 582(7810), 84–88.
- Hornsby, A. N., Evans, T., Riefer, P. S., Prior, R., & Love, B. C. (2020). Conceptual organization is revealed by consumer activity patterns. *Computational Brain & Behavior*, 3(2), 162–173.
- Hornsby, A. N., & Love, B. C. (2020). How decisions and the desire for coherency shape subjective preferences over time. *Cognition*, 200, 104244.
- Love, B. C. (2020a). Linking Models with Brain Measures. In *An Introduction to Model-Based Cognitive Neuroscience (to appear)* (2nd ed.). OSF Preprints.
- Love, B. C. (2020b). Model-based fMRI analysis of memory. *Current Opinion in Behavioral Sciences*, 32, 88–93.
- Mack, M. L., Preston, A. R., & Love, B. C. (2020). Ventromedial prefrontal cortex compression during concept learning. *Nature Communications*, 11(1), 1–11.
- Mok, R. M., & Love, B. C. (2020). Abstract neural representations of category membership beyond information coding stimulus or response. *Journal of Cognitive Neuroscience*, 1–17.
- Roads, B. D., & Love, B. C. (2020). Learning as the unsupervised alignment of conceptual systems. *Nature Machine Intelligence*, 2(1), 76–82.
- Smith, F. B., Luo, X., Roads, B. D., & Love, B. C. (2020). The perceptual boost of visual attention is task-dependent in naturalistic settings. *ArXiv Preprint ArXiv:2003.00882*.
- Braunlich, K., & Love, B. C. (2019). Occipitotemporal representations reflect individual differences in conceptual knowledge. *Journal of Experimental Psychology: General*, 148(7), 1192.

- Broschard, M. B., Kim, J., Love, B. C., Wasserman, E. A., & Freeman, J. H. (2019). Selective attention in rat visual category learning. *Learning & Memory*, 26(3), 84–92.
- Guest, O., Kanayet, F. J., & Love, B. C. (2019). Gerrymandering and computational redistricting. *Journal of Computational Social Science*, 2(2), 119–131.
- Guest, O., & Love, B. C. (2019). Levels of representation in a deep learning model of categorization. *BioRxiv*, 626374.
- Mok, R. M., & Love, B. C. (2019). A non-spatial account of place and grid cells based on clustering models of concept learning. *Nature Communications*, 10(1), 1–9.
- Poldrack, R. A., Feingold, F., Frank, M. J., Gleeson, P., de Hollander, G., Huys, Q. J., Love, B. C., Markiewicz, C. J., Moran, R., Ritter, P., & others. (2019). The importance of standards for sharing of computational models and data. *Computational Brain & Behavior*, 2(3), 229–232.
- Schulz, E., Bhui, R., Love, B. C., Brier, B., Todd, M. T., & Gershman, S. J. (2019). Structured, uncertainty-driven exploration in real-world consumer choice. *Proceedings of the National Academy of Sciences*, 116(28), 13903–13908.
- Ahlheim, C., & Love, B. C. (2018). Estimating the functional dimensionality of neural representations. *NeuroImage*, 179, 51–62.
- Bobadilla-Suarez, S., & Love, B. C. (2018). Fast or frugal, but not both: Decision heuristics under time pressure. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 44(1), 24.
- Inhoff, M. C., Libby, L. A., Noguchi, T., Love, B. C., & Ranganath, C. (2018). Dynamic integration of conceptual information during learning. *PloS One*, 13(11), e0207357.
- Love, B. C. (2018). Model comparison, not model falsification. *Behavioral and Brain Sciences*, 41.
- Mack, M. L., Love, B. C., & Preston, A. R. (2018). Building concepts one episode at a time: The hippocampus and concept formation. *Neuroscience Letters*, 680, 31–38.
- Parpart, P., Jones, M., & Love, B. C. (2018). Heuristics as Bayesian inference under extreme priors. *Cognitive Psychology*, 102, 127–144.

- De Martino, B., Bobadilla-Suarez, S., Nouguchi, T., Sharot, T., & Love, B. C. (2017). Social information is integrated into value and confidence judgments according to its reliability. *Journal of Neuroscience*, *37*(25), 6066–6074.
- Guest, O., & Love, B. C. (2017). What the success of brain imaging implies about the neural code. *ELife*, *6*(e21397), [http-dx](http://dx.doi.org/10.1101/113970).
- Love, B. C. (2017). Concepts, meaning, and conceptual relationships. *The Oxford Handbook of Cognitive Science*, 137–150.
- Love, B. C., Guest, O., Slomka, P., Navarro, V., & Wasserman, E. (2017). Deep Networks as Models of Human and Animal Categorization. *CogSci*.
- Mack, M. L., Preston, A. R., & Love, B. C. (2017). Medial prefrontal cortex compresses concept representations through learning. *2017 International Workshop on Pattern Recognition in Neuroimaging (Prni)*, 1–4.
- Palmeri, T. J., Love, B. C., & Turner, B. M. (2017). Model-based cognitive neuroscience. In *Journal of Mathematical Psychology* (Vol. 76, pp. 59–64). Academic Press.
- Parpart, P., Schulz, E., Speekenbrink, M., & Love, B. C. (2017). Active learning reveals underlying decision strategies. *BioRxiv*.
- Riefer, P. S., Prior, R., Blair, N., Pavey, G., & Love, B. C. (2017). Coherency-maximizing exploration in the supermarket. *Nature Human Behaviour*, *1*(1), 1–4.
- Spiers, H. J., Love, B. C., Le Pelley, M. E., Gibb, C. E., & Murphy, R. A. (2017). Anterior temporal lobe tracks the formation of prejudice. *Journal of Cognitive Neuroscience*, *29*(3), 530–544.
- Turner, B. M., Forstmann, B. U., Love, B. C., Palmeri, T. J., & Van Maanen, L. (2017). Approaches to analysis in model-based cognitive neuroscience. *Journal of Mathematical Psychology*, *76*, 65–79.
- Blanco, N. J., Love, B. C., Ramscar, M., Otto, A. R., Smayda, K., & Maddox, W. T. (2016). Exploratory decision-making as a function of lifelong experience, not cognitive decline. *Journal of Experimental Psychology: General*, *145*(3), 284.
- Love, B. C. (2016). Cognitive models as bridge between brain and behavior. *Trends in Cognitive Sciences*, *20*(4), 247–248.

- Mack, M. L., Love, B. C., & Preston, A. R. (2016). Dynamic updating of hippocampal object representations reflects new conceptual knowledge. *Proceedings of the National Academy of Sciences*, *113*(46), 13203–13208.
- Blanco, N. J., Love, B. C., Cooper, J. A., McGeary, J. E., Knopik, V. S., & Maddox, W. T. (2015). A frontal dopamine system for reflective exploratory behavior. *Neurobiology of Learning and Memory*, *123*, 84–91.
- Gureckis, T. M., & Love, B. C. (2015). Computational reinforcement learning. *The Oxford Handbook of Computational and Mathematical Psychology*, 99–117.
- Love, B. C. (2015). The algorithmic level is the bridge between computation and brain. *Topics in Cognitive Science*, *7*(2), 230–242.
- Love, B. C., Kopeć, Lukasz, & Guest, O. (2015). Optimism bias in fans and sports reporters. *Plos One*, *10*(9), e0137685.
- Love, B. C., Ramscar, M., Griffiths, T. L., & Jones, M. (2015). Generative and Discriminative Models in Cognitive Science. *CogSci*.
- Newall, P. W., & Love, B. C. (2015). Nudging investors big and small toward better decisions. *Decision*, *2*(4), 319.
- Parpart, P., Schulz, E., Speekenbrink, M., & Love, B. C. (2015). Active learning as a means to distinguish among prominent decision strategies. *CogSci*.
- Riefer, P. S., & Love, B. C. (2015). Unfazed by both the bull and bear: Strategic exploration in dynamic environments. *Games*, *6*(3), 251–261.
- Anderson, O. R., Love, B. C., & Tsai, M.-J. (2014). Neuroscience perspectives for science and mathematics learning in technology-enhanced learning environments. In *International Journal of Science and Mathematics Education* (Vol. 12, Issue 3, pp. 467–474). Springer Netherlands.
- Davis, T., Xue, G., Love, B. C., Preston, A. R., & Poldrack, R. A. (2014). Global neural pattern similarity as a common basis for categorization and recognition memory. *Journal of Neuroscience*, *34*(22), 7472–7484.

- Hornsby, A. N., & Love, B. C. (2014). Improved classification of mammograms following idealized training. *Journal of Applied Research in Memory and Cognition*, 3(2), 72–76.
- Love, B. C. (2014). Categorization. *Oxford Handbook of Cognitive Neuroscience*.
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**SELECTED POPULAR WRITINGS** (see <http://bradlove.org/#press> for press coverage)

The lab's blog, <https://bradlove.org/blog/#blog>

Love, B. C. (2019). BBC homepage for a week (500k hits first day). Do supermarkets know more about us than we do? <https://www.bbc.co.uk/news/business-47357292>

Love, B. C. (2016). Will AI spell the end of humanity? The tech industry wants you to think so. *The Register* from *The Conversation*, [https://www.theregister.co.uk/2016/10/25/will\\_ai\\_spell\\_the\\_end\\_of\\_humanity\\_the\\_tech\\_industry\\_wants\\_you\\_to\\_think\\_so](https://www.theregister.co.uk/2016/10/25/will_ai_spell_the_end_of_humanity_the_tech_industry_wants_you_to_think_so)

Love, B. C. (2015). Gaming improves your brain power – reality or hype? *IFL* from *The Conversation*, <https://theconversation.com/gaming-improves-your-brain-power-reality-or-hype-41002>

**INVITED TALKS**

12/2024 TBA, Foresight Vision Weekend (Bay Area)

10/2024 Donders

7/2024 “Embeddings of and for the mind”, Oxford ML Summer School.

7/2024 “Embeddings of and for the mind”, PKU-UCL Summer School.

5/2024 TBA, ICLR 2024 Workshop on Representational Alignment

3/2024 “Taming the neuroscience literature with explanatory and predictive models”, Brain and Behaviour Institute at the Research Centre Jülich.

3/2024 Discussion of BrainGPT project, Polish Academy of Sciences.

3/2024 “Taming the neuroscience literature with explanatory and predictive models”, AI Centre, City University of London.

3/2024 “Taming the neuroscience literature with explanatory and predictive models”, UCL Brain Talk

2/2024 “Taming the neuroscience literature with computational models”, NIH NIDA division.

11/2023 Neurotech Panel, Foresight Institute’s Vision Weekend (France)

11/2023 “The mind is simultaneously discriminative and generative”. Workshop: Bayesian and Not so Bayesian Belief Update in Economics, Neuroscience, and Machine Learning. UCL.

10/2023 Participant, “*Science x AI Safety: Horizon-scanning AI safety risks across scientific disciplines*”. Royal Society.

10/2023 “Embeddings of and for the mind”, Birkbeck, University of London.

10/2023 “Embeddings of and for the mind”, University of Bath.

10/2023 “Aligning embedding spaces for model evaluation and learning”, Symposium on mathematics of neuroscience, Neuromonster, Rhodes, Greece.

8/2023 “Advancing neuroscience using large language models”, Foresight Institute. San Francisco, CA. [https://youtu.be/7G4gR8Lf104?si=Z-HUpWvuVklwF5\\_D](https://youtu.be/7G4gR8Lf104?si=Z-HUpWvuVklwF5_D)

8/2023 “Comparing biological and artificial networks: are we limited by tools, hypotheses, or data?” Workshop at Cognitive Computational Neuroscience (CCN).

6/2023 Workshop on the “Neurobiology of statistical learning”. Kavli Institute for Theoretical Physics, Santa Barbara, USA.

5/2023 “Process models to understand mind and brain”, University of Freiburg.

12/2022 “Aligning Embedding Spaces”, Data science group at dunnhumby Ltd.

11/2022 "Evaluating deep learning models as accounts of mind and brain", Inter-CDT conference on AI (symposium on computational neuroscience, Bristol.

10/2022 "Cross-domain learning and zero-shot generalisation", ELLIS Natural Intelligence Worksop, Crete, Greece.

4/2022 "Medial prefrontal cortex and the hippocampus support a domain-general learning mechanism", British Neuroscience Association.

4/2022 "Multilevel theories for completeness", Symposium at CNS on Marr's levels, organised by Tomaso Poggio.

4/2022 "Process models to understand mind and brain", University of Pennsylvania's MindCORE Seminar.

10/2021 "Embedding Spaces for Decision Making", University of Basel

10/2021 "Embedding Spaces for Decision Making", Max Planck for Adaptive Rationality.

10/2021 "Embedding Spaces for Decision Making" University of Zurich, Neuroeconomics.

9/2021 "Bridging Brain and Behaviour with Process Models", Max Planck for Human Cognitive and Brain Sciences

3/2021 "Do you make decisions or do your decisions make you?", Who's in control? UCL human sciences symposium.

2/2021 "Integrating Embedding Spaces", University of Tübingen (Felix Wichmann).

2/2021 "Integrating Embedding Spaces", University of Trento.

2/2021 "Integrating Embedding Spaces", University of Wisconsin at Madison.

11/2020 "Large-scale embeddings from human behaviour", The Alan Turing Institute.

9/2020 "Category Learning as Compression", Max Plank Centre for Computational Psychiatry and Ageing Research.

6/2020 "From Bayesian models to heuristics and back again", Max Planck Institute for Intelligent Systems.

5/2020 Role of Bayesian Models in Neuroscience. Neuromatch 2.0 (4.5k in attendance; <https://www.crowdcast.io/e/neuromatch2/23>)

5/2020 "Big data, smart analyses", UCL Changing Minds webinar.

5/2020 "A clustering account of spatial and non-spatial concept learning", University of Bristol.

5/2020 "Category Learning as Compression" Cognitive Neuroscience Society (CNS).

9/2020 "Category Learning as Compression", Max Plank Centre for Computational Psychiatry and Ageing Research



6/2020 "From Bayesian models to heuristics and back again" Max Planck Institute for Intelligent Systems.

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5/2020 "Big data, smart analyses", UCL Changing Minds webinar

5/2020 "A clustering account of spatial and non-spatial concept learning" University of Bristol.

5/2020 "Category Learning as Compression" Cognitive Neuroscience Society (CNS) symposium.

2/2020 "Concept learning as compression", Hamburg Center of NeuroScience at UKE.

1/2020 "A common mechanism for spatial and concept learning", Max Planck Institute for Human Cognitive and Brain Sciences.

9/2019 ELLIS, "Top-down attention in the human brain and convolutional networks," Berlin.

7/2019 DoD Future Directions Workshop on Human-Machine Learning, Arlington, VA.

7/2019 General AI discussion panel, Royal Institution.

5/2019 "Levels of Representation in a Deep Learning Model of Categorisation," University of Bristol.

5/2019 "Concept Learning as Compression," Control Processes 2019, Brown University.

4/2019 "Coherency Seeking as a Driver of Preferences," Wharton Business School.

4/2019 Working group on Brain Imaging Data Structure (BIDS) extension for computational modelling. Princeton University.

3/2019 "A deep learning account of shape and colour biases in categorisation," SRCF Biennial, Baltimore.

3/2019 "Concept Learning as Compression," ICPS, Paris.

9/2018 Workshop presentation at "Interpreting BOLD: Furthering the dialogue between cellular and cognitive neuroscience" at Oxford.

9/2018 "Evaluation of the predictive value of the HoNOS," St Andrew's Healthcare.

6/2018 "Predicting when consumers will be unpredictable ", Cheltenham Science Festival - How Predictable Are You? Hosted by Hannah Fry.

6/2018 "Building useful representations based on human activity patterns", UBEL DTC, UCL Innovation event.

- 6/2018 "A deep learning account of shape and colour biases in categorisation", for Multi-Disciplinary Developmental Dynamics (ETF2018).
- 5/2018 "Distinct Accumulation and Aggregation Stages or Processes?", Santa Fe Institute, working group on "Distributed Decision Making: Universal features of decision making via collective computation".
- 6/2018 "Concept Learning as Compression", Cambridge CBU.
- 5/2018 "Selective Attention for Dimensionality Reduction", SBDM, Symposium on Biology of Decision Making, Paris.
- 4/2018 "Concept Learning as Compression", Brain and Behaviour Institute at the Research Centre Jülich.
- 3/2018 "Attention as Uncertainty-Minimising Information Sampling", reinforcement learning workshop at COSYNE in Colorado.
- 2/2018 "Heuristics as Bayesian inference under extreme priors" keynote, for "Computational modeling of decision-making across scales: from neural coding to Policy-making", Paris.
- 8/2017 "Different Modes of Exploration", Invited to join a symposium at ICON, Amsterdam.
- 5/2017 "Exploration with Objective and Subjective Awards", Warwick Business School.
- 2/2017 "Predicting and Understanding Consumer Behaviour", Keynote, Microsoft Tech Days.
- 11/2016 "Predicting and Understanding Human Behaviour", keynote address at Big Data Analytics, London.
- 11/2016 "Tuning Conceptual Knowledge through Hippocampal-Prefrontal Interactions", University of Glasgow.
- 8/2016 "Coherency Maximizing Exploration in the Supermarket", Invited Symposium organised by Dan Bartels, Int. Conference on Thinking.
- 6/2016 "Psychology meets Big Data in the Supermarket", Knowledge Exchange Event, British Museum.
- 3/2016 "People's Inductive Biases in Learning and Decision Making", Keynote at Visual Analytics event at the Alan Turing Institute.
- 3/2016 "The Categorising Brain", University of Edinburgh.
- 3/2016 "The Categorising Brain", University of Sussex.
- 11/2015 Food Matters Live.
- 10/2015 "Optimal Teaching to Infer the Nature of the Human Learner and Knowledge Organisation", Conference on Complex Systems.
- 8/2015 Ogilvy Change Summer School.

- 5/2015 "Do People and Intelligent Machines Make Decisions in the Same Way?" Pint of Science, London.
- 5/2015 "Apparent attentional limits during learning as limits in memory retrieval", Workshop on Memory Processes in Judgment and Decision Making, hosted by University of Basel.
- 4/2015 "Do we make food choices rationally?" write-up in Lancet: <http://t.co/rTrFo87FnJ>, Edinburgh International Science Festival.
- 3/2015 "Decoding the Brain's Algorithm for Categorisation from its Neural Implementation", University of Plymouth.
- 1/2015 "Decoding the Brain's Algorithm for Categorisation from its Neural Implementation", Institute of Psychiatry, King's College London
- 1/2015 "Decoding the Brain's Algorithm for Categorisation from its Neural Implementation", 2015 EPS semantics symposium.
- 9/2014 "Decoding the Brain's Algorithm for Categorisation from its Neural Implementation", NYU.
- 5/2014 "Exploration and Exploitation: Converging Computational, Physiological, Psychiatric, Genetic, and Consumer-Choice Perspectives", University of Bristol.
- 9/2014 "Decoding the Brain's Algorithm for Categorisation from its Neural Implementation," NYU.
- 5/2014 "Exploration and Exploitation: Converging Computational, Physiological, Psychiatric, Genetic, and Consumer-Choice Perspectives," University of Bristol.
- 3/2014 "Decoding the Brain's Algorithm for Categorisation from its Neural Implementation," University of Lueven.
- 2/2014 "Limits in decision making arise from limits in memory retrieval," University of Basel.
- 2/2014 "Gaming as a Convergence Point of Cognitive Science Theory and Practice," HULT International Business School, London.
- 1/2014 "Decoding the Brain's Algorithm for Categorisation from its Neural Implementation", MRC-Cognition and Brain sciences Unit at Cambridge University.
- 11/2013 "Improving Cognitive Function Through Gaming", Decision-making in neurological rehabilitation Inaugural Symposium, Centre for Neurorehabilitation @UCLP.
- 8/2013 "Limits in Decision Making Reflect Limits in Memory Retrieval", dunnhumby Corporation, London, UK.
- 6/2013 AECT International Conference on the Frontier in e-Learning Research, Taipei, Taiwan.

- 5/2013 "Limits in Decision Making Reflect Limits in Memory Retrieval", Workshop on Integrating Approaches to Computational Cognition, Sponsored by the National Science Foundation, Arlington, VA, USA.
- 3/2013 "Limits in Decision Making Reflect Limits in Memory Literature", Computational Models of Cognition Workshop, Birkbeck.
- 2/2013 "Limits in Decision Making Reflect Limits in Memory Literature", London JDM group.
- 2/2013 "Linking Brain, Behaviour, and Computation in Category Learning", City University London
- 11/2012 "Cognitive Psychology in Service of Retail", dunnhumby corporation, London, UK.
- 9/2012 "Linking Brain, Behaviour, and Computation in Category Learning", Center for Cognitive Neuroscience. University of Pennsylvania.
- 8/2012 Talks at National Taiwan University of Science and Technology (NTUST), Taipei, Taiwan, and National Central University (NCU), Jhongli City, Taiwan.
- 8/2012 Invited symposium, "Thirty years of Marr's Vision: Levels of Analysis in Cognitive Science", Annual Meeting of the Cognitive Science Society, Sapporo, Japan.
- 6/2012 "Boosting Executive Function through Video Game Training", Cognitive Control and Associative Learning workshop, Exeter, UK.
- 4/2012 "Linking Brain, Behaviour, and Computation in Category Learning", Swansea University.
- 3/2012 "Linking Brain, Behaviour, and Computation in Category Learning", Wellcome Functional Imaging Laboratory, UCL.
- 3/2012 "Linking Brain, Behaviour, and Computation in Category Learning", University of Oxford.
- 3/2012 "Linking Brain, Behaviour, and Computation in Category Learning", University of Warwick.
- 2/2012 "Linking Brain, Behaviour, and Computation in Category Learning", Birkbeck, University of London.
- 12/2011 "Learning the exception to the rule," Department of Linguistics, University of Texas at Austin
- 4/2011 Panellist, "Sustainable Design Symposium 2011," hosted by Kate Catterall.
- 2/2011 "The Memory and Attention Interface," Brown University.
- 2/2011 "Attention as a Consequence of Dynamic Decision Making," UNSW.
- 1/2011 "Attention as a Consequence of Dynamic Decision Making," UCL.

- 11/2010 "Looking to Learn, Learning to Look: Attention Emerges from Cost Sensitive Information Sampling", Workshop on Persistent & Generative Cognitive Models, funded and hosted by Air Force Research Laboratory (Mesa, AZ).
- 5/2010 "When Short- and Long-Term Rewards Conflict," Cognitive Science Program, Simon Fraser University.
- 3/2010 "Putting the Pieces Together: Contributions and Interactions of Various Learning Systems," University of Iowa.
- 10/2009 "The Bayesian Program as Progeny of Evolutionary Psychology and Behaviorism," CDS Pre-Conference talk, sponsored by the DELTA center and organized by John Spencer.
- 8/2009 "The not so abstract nature of concepts, rules, and grammar," address to Max Planck Institute for Psycholinguistics (Nijmegen, NL).
- 8/2009 "Connectionist Perspectives on the Development of Category Learning Abilities," development and modelling symposium organized by Maartje Raijmakers, Amsterdam, The Netherlands.
- 11/2008 "Category Learning by Clustering with Extension to Dynamic Environments," AFOSR Cognition & Decision Program Workshop, Washington, D.C. Hosted by Jun Zhang.
- 8/2008 "Where do we get new research ideas?" Connecting probabilistic models of cognition and neural networks workshop, Hosted by Tom Griffiths and Jay McClelland, Berkeley, CA.
- 6/2008 "The Role of Initial Conditions in Concept Organization," Concept Modelling Workshop, University of Lueven, Belgium.
- 5/2008 "Using Mechanistic (non-rational) Models of Learning to Link Behavior, Brain, and Body," Keynote, Perceptual Expertise Network (PEN) Workshop XVI in Banff, Canada.
- 5/2008 "Using Mechanistic (non-rational) Models of Learning to Link Behavior, Brain, and Body," Department of Psychology, Ohio State.
- 12/2007 "Anticipating Information Needs: Adaptive Display in Dynamic Environments," Sustaining Performance Under Stress Symposium, Center for Strategic and Innovative Technologies, Austin, TX.
- 9/2007 "Human Inference Mechanisms," Cowles Foundation for Research in Economics, Yale University, workshop on "Analogies, Rules, and Probabilities."
- 3/2007 "Learning by Example with Extension to Dynamic Environments," AFOSR Cognition & Decision Program Workshop, Washington, D.C.
- 2/2007 "The Emergence of Multiple Learning Systems," University of Arizona.
- 2/2007 "Putting the Psychology Back Into Psychological Models," AFOSR sponsored workshop in Dynamic Decision Making, Dayton, OH.
- 11/2006 "The Emergence of Multiple Learning Systems," University of Louisiana.

- 7/2006 "The Emergence of Multiple Learning Systems," ICOM, Sydney, Australia.
- 7/2006 "Models in Search of a Brain," workshop, Margaret River, Australia.
- 6/2006 "The Emergence of Multiple Learning Systems," UWA, Australia.
- 4/2006 "The Emergence of Multiple Learning Systems," AFOSR Cognition & Decision Program Workshop, Dayton, OH.
- 4/2006 "The Emergence of Multiple Learning Systems," APA Convention Invited Division 3 speaker, New Orleans, LA.
- 10/2005 Speaker/Symposium Organizer, "The Cognitive Neuroscience of Category Learning," at the Computational Cognitive Neuroscience Conference, Washington, D.C.
- 9/2005 "Acquiring Knowledge One Cluster at a Time," Department of Psychology, New York University, NYC.
- 7/2005 "Exemplar-based relational category learning," Annual Summer Interdisciplinary Conference (ASIC) 2005, Briançon, France.
- 6/2005 Workshop Participant, NSF sponsored "Dynamical and Connectionist Accounts of Development," University of Iowa, organized by John Spencer and Jay McClelland.
- 5/2005 "A Clustering Account of Human Categorization," Department of Psychology, University of Sydney, Australia.
- 4/2005 "Cluster-based Modeling of Human Learning: Joint Influences of Task and Environment," AFOSR Perception & Cognition Program Workshop, St. Augustine, FL.
- 4/2005 "Environment and goals jointly direct category acquisition," Department of Psychology, Texas A&M, College Station, TX.
- 2/2005 Keynote speaker for Lake Ontario Visionary Establishment Conference.
- 2/2005 "Beyond common features: The role of roles in determining similarity." Department of Psychology, The University of Western Ontario.
- 1/2005 "Clustering Account of Human Learning" Department of Psychology, Stanford University.
- 1/2005 "Clustering Account of Human Learning" Department of Psychology, UCSD.
- 10/2004 "Bridging Levels: A Cognitive Model of Hippocampal Mediated Learning," J. S. McDonnell Foundation meeting on the cognitive neuroscience of category learning, New York City, NY.
- 9/2004 "Bridging Levels: A Cognitive Model of Hippocampal Mediated Learning" Department of Communication Sciences and Disorders, The University of Texas at Austin.

- 6/2004 "Infants, amnesiacs, aging, and the MTL," Annual Summer Interdisciplinary Conference (ASIC) 2004, Dolomiti, Italy.
- 3/2004 "A Clustering Account of Human Learning," AFOSR Perception & Cognition Program Workshop, Phoenix, AZ.
- 2/2004 "Human Learning, Memory, and the Categories in and Imposed on Our World," UT Odyssey lecture, Austin, TX.
- 1/2004 "A Clustering Account of Human Category Learning," Caltech, Computation and Neural Systems, Pasadena, CA.
- 11/2003 "Infants, Amnesiacs, and the MTL," ARMADILLO, Texas A&M, College Station, TX.
- 9/2003 "Category Learning in Infants and Amnesiacs," J. S. McDonnell Foundation meeting on the cognitive neuroscience of category learning, New York City, NY.
- 6/2003 "The influence of culture on conceptual organization," talk given at a conference to honour Douglas Medin, Chicago Botanical Gardens, Chicago, IL.
- 9/2002 "Two systems or just one," J. S. McDonnell Foundation meeting on the cognitive neuroscience of category learning, New York City, NY.
- 8/2002 Invited Discussant, AMBR symposium at the Cognitive Science Society Conference, Washington, D.C.
- 11/2001 "Aging effects in category learning," Mind, Brain, & Behavior Forum Series, Harvard University, Cambridge, MA.
- 7/2001 "Inference and classification learning: Data and models," ICOM-3: Third International Conference on Memory. Valencia, Spain.
- 11/2000 "Modeling Human Category Learning," Forum for Artificial Intelligence, Department of Computer Science, The University of Texas at Austin, Austin, TX.
- 10/2000 "Inference and Classification Learning," Association for Research in Memory, Attention, Decision-making, Intelligence, Language, Learning & Organization (ARMADILLO), Texas A&M, College Station, TX.
- 2/1999 "SUSTAIN: A Clustering Account of Category Learning," Psychology Department, Columbia University, New York City, NY.