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Specialization

Areas of Specialization: Cognitive Science, Philosophy of Science, Formal Epistemology

Areas of Competence: Decision Theory, Digital Humanities, Philosophy of Race

Academic Employment

Yale University
Department of Psychology
Lecturer, August 2023–Present

Google Research
Visiting Faculty Researcher, October 2023–Present

Princeton University
Program in Cognitive Science and University Center for Human Values
Postdoctoral Research Associate, September 2021–August 2023
P.I.: Tania Lombrozo

Santa Fe Institute
Omidyar Postdoctoral Fellow, September 2019–August 2021

Education

London School of Economics
Ph.D. Philosophy, September 2015–August 2019
M.Sc. Philosophy and Public Policy, September 2013–September 2014 (Distinction)

Dartmouth College
B.A. Philosophy, September 2007–June 2011 (*cum laude*, High Honors)

Grants Awarded

Foundations and Applications of Cultural Analytics in the Humanities. National Endowment for the Humanities HT-272418. Project Director (NEH Equivalent of PI). \$229,639. 2020-2023.

Peer-Reviewed Journal Publications

Forthcoming. [Tell Me Your \(Cognitive\) Budget and I'll Tell You What You Value](#) (with Tania Lombrozo). *Cognition*.

2023. [Risk Aversion and Elite-Group Ignorance](#) (with Liam Kofi Bright). *Philosophy and Phenomenological Research*. 106(1): 35-57

2023. [Causal History, Statistical Relevance, and Explanatory Power](#). *Philosophy of Science*. 90(5): 1161-1172
2023. [Bayesian Networks and Causal Ecumenism](#). *Erkenntnis*. 88: 147–172
2022. [Why Average When You Can Stack? Better Methods for Generating Accurate Group Credences](#). *Philosophy of Science*. 89(4): 845-863
2022. [Epistemology and Anomaly Detection in Astrobiology](#) (with Christopher Kempes). *Biology & Philosophy*. 37:22
2022. [Diachronic Trends in the Topic Distributions of Formal Epistemology Abstracts](#). *Synthese*. 200(1): 1-24
2021. [Blocking an Argument for Emergent Chance](#). *Journal of Philosophical Logic*. 50: 1057–1077
2021. [Curie’s Principle and Causal Graphs](#). *Studies in History and Philosophy of Science*. 87: 22-27.
2019. [On the Explanatory Depth and Pragmatic Value of Coarse-Grained, Probabilistic, Causal Explanations](#). *Philosophy of Science*. 86(1): 145-167.
2019. [Inductive Explanation and Garber-Style Solutions to the Problem of Old Evidence](#). *Synthese*. 196(10): 3995-4009.

Peer-Reviewed Publications in Conference Proceedings

2023. [Tell Me Your \(Cognitive\) Budget, and I’ll Tell You What You Value: Evidential Relationships Between Granularity, Agential Values, and Data in Generic Causal Claims about the Social World](#) (with Tania Lombrozo). *Proceedings of the 45th Annual Conference of the Cognitive Science Society*. pp. 2609-2615.
2022. [Evaluations of Causal Claims Reflect a Trade-Off Between Informativeness and Compression](#) (with Tania Lombrozo). *Proceedings of the 44th Annual Conference of the Cognitive Science Society*. pp. 621-7.
2020. [Causal Feature Learning for Utility-Maximizing Agents](#) (with David Watson). *Proceedings of Machine Learning Research* (138). Tenth International Conference on Probabilistic Graphical Models (PGM): 257-268.

Invited Contributions and Book Reviews

2024. [A Stochastic Model of Mathematics and Science](#) (with David Wolpert). *Foundations of Physics*. 54: 21. (Invited By Carlo Rovelli).
- [Going Against the Grain of Proportionality](#) (with Tania Lombrozo) *Brains Blog Symposium on James Woodward’s **Causation with a Human Face***.
- 2021 [Noisy Deductive Reasoning: How Humans Construct Math, and How Math Constructs Universes](#). (with David Wolpert). *Undecidability, Uncomputability, and Unpredictability*. Springer. Ed. Anthony Aguirre, Zeeya Merali, and David Sloan. (Collection of winning essays from FQXi’s 2020 Essay Contest). pp. 141-168
2021. [Review of *What Is a Complex System?* by James Ladyman and Karoline Wiesner](#). BJPS Review of Books
2018. [Imprecise Bayesian Networks as Causal Models](#). *Information*. 9(9), 211. (Special Issue on Probabilistic Causal Modelling in Intelligent Systems, ed. Kevin Korb, Anne Nicholson, and Erik Nyberg).

Teaching

As Lead Instructor

CGSC 217: The Cognitive Science of Large Language Models. Spring 2024 (Planned). (Yale)

PSYC 518a: Multivariate Statistics. Spring 2024 (Planned). (Yale)

PSYC 130/CGSC 110: Introduction to Cognitive Science. Autumn 2023. (Yale)

PSYC235: Research Methods in Psychology, Writing Intensive. Autumn 2023. (Yale)

Senior Thesis Workshop in Values and Public Life. 2021-22, 2022-23 (Princeton)

Foundations and Applications of Humanities Analytics. 2021-23 (Santa Fe Institute; Online course and in-person workshop co-taught with Simon DeDeo)

*As Graduate Teaching Assistant**

*At LSE, graduate teaching assistants have full responsibility for teaching weekly classes and marking formative and summative work.

PH103: Introduction to Philosophy. 2018-19 (LSE)

PH201: Philosophy of Science. 2017-18 (LSE)

PH225: Business and Organizational Ethics. Autumn 2016 (LSE)

6AANA046: Topics in Political Philosophy. Autumn 2016 (King's College London)

PH101: Logic. 2015-16 (LSE)

PH222: Philosophy and Public Policy. 2015-16 (LSE)

Teacher Training:

UK Postgraduate Certificate in Higher Education

Awards and Scholarships

FQXi Essay Contest Second Prize (with David Wolpert) 2020. \$5,000.

LSE Philosophy Class Teacher Award 2016, 2019

LSE Popper Prize (biennial award for distinguished graduate work in an area of philosophy to which Karl Popper made significant contributions) 2018. £250.

National Science Foundation Travel Grant 2018. \$357.

LSE Postgraduate Travel Award 2016 (x2), 2017 (x3), 2018 (x3), Approx. £4,000 Total.

LSE Student's Union Teaching Award: Highly Commended for Feedback and Communication 2016

LSE Ph.D. Studentship 2015–2019. £18,000 p.a.

James B. Reynolds Scholarship for Graduate Study Abroad 2013–2014. \$20,000.

Other Writing

[Longtermism and Computational Complexity.](#) *Effective Altruism Forum.*

[The Mathematical Case Against Blaming People for their Misfortune.](#) *Psyche.* (Further coverage in *Motherboard.*)

[In a Complex Crisis, Scientists Cannot Avoid Making Value Judgments.](#) *Santa Fe Institute Transmission.* (Quoted in *The Guardian.*)

[Getting the Details Just Right: Solving the “Goldilocks Problem” of Scientific Explanation.](#) *London School of Economics Philosophy Blog.*

Conference and Workshop Presentations

*=Presented Remotely Due to COVID-19.

†=Paper Accepted, Conference Cancelled Due to COVID-19.

Lossy Compression and the Granularity of Causal Representation. NeurIPS Workshop on Information-Theoretic Principles in Cognitive Systems. December 2023. New Orleans.

Causal Theories and Structural Data Representations for Improving Out-of-Distribution Classification. Causal Data Science Meeting. November 2023. Online.

Identifying Fair and Good Predictors. Causality for Ethics and Society. July 2023. Munich.

Tell Me Your (Cognitive) Budget, and I’ll Tell You What You Value: Evidential Relationships Between Granularity, Agential Values, and Data in Generic Causal Claims about the Social World.

Society for Philosophy and Psychology Annual Meeting. June 2023. Pittsburgh.

Heuristics and Causality Workshop. May 2023. London.

Evaluations of Causal Claims Reflect a Trade-Off Between Informativeness and Compression. Annual Meeting of the Cognitive Science Society. July 2022. Toronto.

Corroboration Conditions for Cyclic Bayesian Networks. Superdeterminism and Retrocausality Workshop. May 2022. Bonn.

Hinge Epistemology in the Search for Life Beyond Earth. Uncovering the Laws of Life Workshop. October 2021. Grindavik.

Conditional Expectations and Evidential Aboutness. APA Central Division Meeting. February 2021. New Orleans.*

Causal Feature Learning for Utility-Maximizing Agents. Tenth International Conference on Probabilistic Graphical Models (PGM). September 2020. Aalborg.*

Epistemic Principles of Astrobiology

European Philosophy of Science Association Biennial Conference. September 2021. Turin.*

Philosophy of Science Association Poster Forum. January/November 2021.*

British Society for Philosophy of Science Annual Conference. July 2020. University of Kent.†

Philosophy of Biology at the Mountains. June 2020. University of Utah.*

Why Average When You Can Stack? Better Methods for Generating Accurate Group Credences

LMU-MCMP Workshop on Bayesian Epistemology: Perspectives and Challenges. August 2020. LMU Munich.*

Formal Epistemology Workshop. May 2020. University of California at Irvine.*

ILLC Workshop on the Wisdom and Madness of Crowds: Argumentation, Information Exchange and Social Interaction. March 2020. University of Amsterdam.*

Kolmogorov Complexity and Occam's Razor Assumptions in Inductive Causal Inference. Conference for Philosophy of Science and Formal Methods in Philosophy. December 2019. University of Gdansk.

Algorithmic Causal Modeling as a More General Model of Inductive Causal Inference. European Philosophy of Science Association Biennial Conference. September 2019. Geneva.

Efficient Information Gathering for Agents with a Causal Model of their Environment. Workshop on Causal Cognition in Humans and Machines. May 2019. Oxford.

Pragmatic Causal Feature Learning. Workshop on Causation vs. Constitution: Loosening the Friction. December 2018. University of Bergen.

Curie's Principle and Causal Graphs.

Philosophy of Science Association Biennial Meeting. November 2018. Seattle.

Society for Exact Philosophy Annual Conference. May 2018. University of Connecticut.

Causal Explanations: Power, Depth, Granularity, and Accuracy. Explanatory Power Workshop. June 2018. University of Geneva.

Two Concepts of Independence for Imprecise Bayesian Networks. Munich-Sydney-Tilburg-Turin Philosophy of Science Conference. June 2018. University of Turin. (Poster)

Bayesian Networks and Multi-Level Causation. APA Central Division Meeting. February 2018. Chicago.

A Dilemma for Multi-Level Humeans. Australasian Association of Philosophy Conference. July 2017. University of Adelaide.

Choosing the Correct Level of Causal Description: A Pragmatic Approach.

Society for the Metaphysics of Science Conference. October 2017. Fordham University.

Munich-Sydney-Tilburg Philosophy of Science Conference. March 2017. University of Sydney.

Dutch Research School of Philosophy (OZSW) Conference. December 2016. Groningen.

Invited Talks

Measuring Topical Distinctness in Stochastic Block Topic Models. Cultural Data Analytics Seminar. March 2024. Tallinn University.

Computational Complexity and Consequentialism. Global Priorities Institute. November 2022. University of Oxford.

Building Compressed Causal Models of the World (with Tania Lombrozo)

Formal Epistemology and Experimental Philosophy Workshop. October 2022. Pittsburgh.

Cognitive Research Seminar. October 2022. Princeton.

Models that Discover Their Own Representational Context. Philosophy Colloquium. May 2022. University of Hannover.

Evaluations of Causal Claims Reflect a Trade-Off Between Informativeness and Compression. Santa Fe Institute Seminar. March 2022.

Why Average When You Can Stack? Better Methods for Generating Accurate Group Credences. LSE Choice Group. October 2020.

How Kernel Support Vector Machines Represent Actual and Possible Data. Modeling the Possible Workshop. October 2020. University of Vienna.

Risk Aversion and Elite-Group Ignorance. Santa Fe Institute Science Club. July 2020.

Levels Without Supervenience: An Information-Bottleneck Approach. Institute of Philosophy. October 2019. London.

Pragmatic Causal Feature Learning. LSE Choice Group. November 2018. London.

Imprecise Bayesian Networks as Causal Models. Workshop on Counterfactuals and Causal Modeling. August 2018. Australian National University.

A Dilemma for Multi-Level Humeans.

LSE Choice Group. October 2017.

University of Melbourne HPS Seminar. July 2017.

Choosing the Correct Level of Causal Description: A Pragmatic Approach. ANU PhilSoc Seminar. March 2017. Australian National University.

Service

Organizer of Google—SFI Conference on Causation, Cognition, Complexity, and Representation for Responsible AI. March 2024.

Research Assistant for LSE Choice Group (Weekly departmental seminar), 2017-2019.

Reviewer for *ACM FaCCT*, *PNAS Nexus*, *Philosophy and Phenomenological Research*, *Developmental Psychology*, *Mind*, *British Journal for the Philosophy of Science*, *Philosophy of Science*, *Ethics*, *Erkenntnis*, *Synthese*, *Biology and Philosophy*, *Philosophy and Technology*, *Episteme*, *Economics and Philosophy*, *European Journal for Philosophy of Science*, *Philosophical Quarterly*, *Canadian Journal of Philosophy*, *Journal for General Philosophy of Science*, *Kriterion*, *PLOS One*, *Entropy*, *SoftwareX*, and *International Journal of Approximate Reasoning*.

Referee for LSE-Bayreuth Student Philosophy Conference, 2017-2019

References

Dr. Liam Kofi Bright
Associate Professor
Department of Philosophy, Logic and Scientific Method
London School of Economics and Political Science

Dr. Simon DeDeo (Teaching Reference)
Associate Professor
Department of Social and Decision Sciences
Carnegie Mellon University

Dr. Joshua Knobe (Teaching Reference)
Professor
Departments of Philosophy and Psychology
Yale University

Dr. Tania Lombrozo
Professor
Department of Psychology
Princeton University

Dr. Katie Steele
Professor
School of Philosophy
Australian National University