

## DANIEL C. BURNSTON, PH.D.

Associate Professor  
Philosophy Department, Tulane University  
Member Faculty, Tulane Brain Institute  
Director, Tulane Cognitive Studies Program  
Co-Managing Editor, The Brains Blog  
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## CURRICULUM VITAE

### POSITIONS HELD

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Associate Professor, Philosophy Department, Tulane University (2021-present)  
Assistant Professor, Philosophy Department, Tulane University (2015-2021)  
Junior Research Fellow, Center for Philosophy of Science, University of Pittsburgh  
(Spring 2019, Spring 2023)  
Junior Research Fellow, KLI Institute (Summer 2015)  
Visiting Scholar  
University of Edinburgh (Winter 2022)  
University of Bologna (Fall 2022)  
Ruhr University (Summer 2019)  
Australia National University (Fall 2018)  
Donders Institute for Cognitive Neuroscience, Radboud University (July 2011)

### EDUCATION

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Ph.D. in Philosophy and Cognitive Science, University of California, San Diego, 2015.  
Dissertation: *Perceptual Context and the Nature of Neural Function*.  
Recipient: Chancellor's Dissertation Medal, UC San Diego.  
M.A. in Philosophy, Georgia State University. Neurophilosophy Track, 2009.  
B.A. in Philosophy, *Magna Cum Laude*, Rutgers University, 2007.

### AREAS OF SPECIALIZATION

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Philosophy of Neuroscience  
Philosophy of Mind  
Philosophy of Psychology

### AREAS OF COMPETENCE

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Philosophy of Science  
Philosophy of Biology

## PUBLICATIONS

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### \*\*Book chapters

- (2021). Cognitive Ontologies, Task Ontologies, and Explanation in Cognitive Neuroscience. J. Bickle, A.S. Barwich, and C. Craver (Eds.) *The Tools of Neuroscience Experiment: Philosophical and Scientific Perspectives* (pp. 259-283). Routledge.
- (2021, with Philipp Haueis). The Multiple Senses of “Hierarchy” in Systems Neuroscience. F. Calzavarini and M. Viola (Eds.), *Neural Mechanisms: New Challenges in Philosophy of Neuroscience* (pp. 113-141). Springer.
- (2021). Pluralistic Attitude-Explanation and the Mechanisms of Intentional Action. D. Shoemaker (Ed.), *Oxford Studies in Agency and Responsibility, Vol 7.* (pp. 130-153). Oxford University Press.
- (2015, with Jonathan Cohen). Perceptual Integration, Modularity, and Cognitive Penetration. A. Raftopolous and J. Zembiek (Eds.), *Cognitive Influences on Perception: Implications for Philosophy of Mind, Epistemology, and Philosophy of Action* (pp. 123-143). Oxford University Press.

### \*\*Peer reviewed journal articles

- (Forthcoming). How to Think about Higher-Level Perceptual Contents. *Mind and Language*.
- (2023, with Antonella Tramacere). Distributed Loci of Control: Overcoming Stale Dichotomies in Biology and Cognitive Science. *Rivista Internazionale di Filosofia e Psicologia*, 14(1-2), 103-117.
- (2022). Mechanistic Decomposition and Reduction in Complex, Context-Sensitive Systems. *Frontiers in Psychology*, 13, 992347.
- (2021). Perceptual Learning, Categorical Perception, and Cognitive Permeation. *Dialectica*, 75(1), 25-58
- (2021). Bayes, Predictive Processing, and the Cognitive Architecture of Motor Control. *Consciousness and Cognition*, 96, 103218.
- (2021). Contents, Vehicles, and Complex Data Analysis in Neuroscience. *Synthese*, 199(1), 1617-1639.
- (2021). Anti-Intellectualism for the Learning and Employment of Skill. *Review of Philosophy and Psychology*, 12, 507-526.
- (2021). Getting over Atomism: Functional Decomposition in Complex Neural Systems. *British Journal for the Philosophy of Science*, 72(3), 743-772.
- (2020). Fodor on imagistic mental representations. *Rivista Internazionale di Filosofia e Psicologia*, 11(1), 71-94.
- (2017). Real patterns in biological explanation. *Philosophy of Science*, 84(5), 879-891.
- (2017). Interface problems in the explanation of action. *Philosophical Explorations*, 20(2), 242-258.
- (2017). Is aesthetic experience evidence for cognitive penetration? *New Ideas in Psychology*, 47, 145-156.

- (2017). Cognitive penetration and the cognition–perception interface. *Synthese*, 194(9), 3645-3668.
- (2016). Computational neuroscience and localized neural function. *Synthese*, 193(12), 3741–3762.
- (2016). A contextualist approach to functional localization in the brain. *Biology & Philosophy*, 31(4), 527-550.
- (2016). Data graphs and mechanistic explanation. *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*, 57, 1-12.
- (2014, with Ben Sheredos, Adele Abrahamsen, and William Bechtel). Scientists' Use of Diagrams in Developing Mechanistic Explanations: A Case Study from Chronobiology. *Pragmatics and Cognition*, 22(2), 224-243.
- (2014, with Sebo Uithol and Pim Haselager). Why we May not Find Intentions in the Brain. *Neuropsychologia*, 56, 129-139.
- (2014, with William Bechtel, Ben Sheredos, and Adele Abrahamsen). *Representing time in scientific diagrams*. Paper presented at the Proceeding of the 36th Annual Conference of the Cognitive Science Society.
- (2013). Mechanistic Diagrams as Search Organizers. *Proceedings of the 36<sup>th</sup> Annual Meeting of the Cognitive Science Society* (pp. 1952-1957). Cognitive Science Society.
- (2013, with Ben Sheredos, Adele Abrahamsen, and William Bechtel). Why Do Biologists Use so Many Diagrams? *Philosophy of Science*, 80(5), 931-944.
- (2012, with Jonathan Cohen). Perception of Features and Perception of Objects. *Croatian Journal of Philosophy*, 12(3), 283-314.
- (2011, with Ben Sheredos and William Bechtel). HIT on the Psychometric Approach. *Psychological Inquiry*, 22, 108-114.

#### **\*\*Book reviews**

- (2019). Review of Angela Potochnik's *Idealization and the Aims of Science*. *Philosophy of Science*, 86(3), 577-583.
- (2012). Naturalism and Scientific Creativity: New Tools for Analyzing Science (Review of the Book: *Models of Discovery and Creativity*, J. Meheus & T. Nickels, Eds.). *Metascience*, 21, 115-118.

#### **TALKS**

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#### **\*\*Invited talks**

- How Your Brain Decides: Intertheoretic Reduction of the Concept of 'Decision'.  
Keynote Address, Georgia State University, Brains and Behavior Program Annual Retreat, May 2023.
- Attitude Explanation and the Science of Decision (debate with Wayne Wu). Center for Philosophy of Science, University of Pittsburgh, April 2023.

Gricean Inferentialism about Scientific Representation: A Framework and Two Applications. Center for Philosophy of Science, University of Pittsburgh, February, 2023.

Rich, Non-Conceptual Sensorimotor Representation. San Diego Philosophy of Perception Workshop, March 2023.

Rich, Non-Conceptual Sensorimotor Representation. UC Irvine, Cognitive Science Department, March 2023.

Intertheoretic Reduction of the Concept of ‘Decision’. University of Edinburgh, December 2022.

Intertheoretic Reduction of the Concept of ‘Decision’. University of Bielefeld, December 2022.

Intertheoretic Reduction of the Concept of ‘Decision’. University of Bologna, October 2022.

Rich, Non-Conceptual Sensorimotor Representation. University of Indiana, Bloomington, March 2022.

Predictive Processing, Bayes, and the Cognitive Architecture of Motor Control. Empirical Approaches to Rationality Group, University of Turku, Helsinki, January, 2022. (Remote talk.)

Embodied Agency and Pluralistic Folk Psychology. Centre for Philosophical Psychology, University of Antwerp, March 2021. (Remote Talk)

Modularity, Learning, and Cognitive Penetration. Max Planck School of Cognition, Berlin, January 2021. (Remote Talk)

A Plea for Task Ontology. Natural Kinds in Cognitive Science Workshop, York University, June 2019.

Multimodality and Defining the Senses. AISC Midterm Conference, Symposium on Multimodality, Lucca, May 2019.

Causal and Semantic Relations between Cognitive and Sensorimotor States. University of Pittsburgh, January 2019.

Inferentialism and Maker’s Knowledge. Modeling and Reasoning in the Sciences Workshop, National Yang-Ming University, Taiwan, December 2019.

Modularity, Learning, and Cognitive Penetration. University of Auckland, October 2018.

Causal and Semantic Relations between Cognitive and Sensorimotor States. Macquarie University, October 2018.

A Deflationary Approach to the Cognitive Penetration Debate. Australia National University, October 2018.

Getting over Atomism: Functional Decomposition in Complex Neural Systems. Neural Mechanisms Online, March 2018.

Argument through Visualization: Image and Text in Biology Papers. International Society for the History, Philosophy, and Social Science of Biology, Sao Paulo, Brazil, July 2017.

Inferentialism in Biological Practice. Deep South Philosophy of Biology Workshop, Birmingham, April 2017.

A Contextualist Approach to Functional Localization. Tulane University, Neuroscience Colloquium, New Orleans, September 2016.

Getting over Atomism. Georgia State University, April 2016.

Interface Problems in Cognitive Architecture. Research in Progress Talk, Tulane University, November 2016.  
 A Contextualist Theory of Functional Localization. Tulane University, February 2016.  
 A Contextualist Theory of Functional Localization. University of Indiana, Bloomington, January 2016.  
 Perceptual Context and the Nature of Neural Function. University of Parma, July 2013.

**\*\*Contributed conference talks**

Collaborative Modeling in Neuroscience: Lessons for the Philosophy of Scientific Representation. Philosophy of Neuroscience at the Gulf VI, Pensacola, September 2023.  
 Representing Relations Perceptually. Association for the Scientific Study of Consciousness, New York, July 2023. (Poster.)  
 An Inferentialist Account of Scientific Representation (with Mark Povich). International Society for the History, Philosophy, and Social Science of Biology, Toronto, July 2023.  
 A Gricean Inferentialist Account of Scientific Representation (with Mark Povich). Scientific Understanding and Representation (SURE), Toronto, May 2023.  
 Intertheoretic Reduction of the Concept of ‘Decision’. Southern Society for Philosophy and Psychology, Louisville, March 2023.  
 Inferentialism and Maker’s Knowledge. Society for Philosophy of Science in Practice, Ghent, July 2022.  
 How to Think about Higher-Level Perceptual Contents. Southern Society for Philosophy and Psychology. Mobile, March 2022.  
 Intertheoretic Reduction of the Concept of ‘Decision’. Philosophy of Neuroscience at the Gulf, Pensacola, September 2021.  
 Neural Decoding and Neural Representation. Mississippi Academy of Sciences, Biloxi, August 2021.  
 Complex Mapping Tools and Task Ontologies. NeuroTech, Pittsburgh Center for Philosophy of Science, January 2020.  
 Embodied Agency and Pluralistic Folk Psychology. New Orleans Workshop on Agency and Responsibility, New Orleans, November 2019.  
 Neural Decoding and Neural Representation. Deep South Philosophy of Neuroscience Workshop, Pensacola, September 2019.  
 The Neuroscience of Decision as a Basis for Social Neuroscience. AISC Midterm Conference, Lucca, May 2019.  
 Tools, Skills, and the Organization of the Mind. Re-Tuning Cognition with a Box of Rocks Workshop, University of Pittsburgh, March 2019.  
 The Multiple Senses of “Hierarchy” in Systems Neuroscience (with Philipp Haueis). Neural Mechanisms Online Conference, October 2018.  
 Causal and Semantic Relations between Cognitive and Sensorimotor States. Australasian Association of Philosophy, Wellington, New Zealand, July 2018.  
 Pluralism and Representation in Biology. Society for Philosophy of Science in Practice, Ghent, June 2018.

The Multiple Senses of “Hierarchy” in Systems Neuroscience (with Philipp Haueis). Levels of Cognition, Italian Association for Cognitive Science, Genoa, June 2018.

Abstraction in Diagrams and Explanation. 10th International Conference on the Theory and Application of Diagrams, Edinburgh, June 2018.

Getting over Atomism. International Society for the History, Philosophy, and Social Science of Biology, Sao Paolo, Brazil, July 2017.

There Is No Diachronic Cognitive Penetration. American Philosophical Association, Pacific Division, Seattle, April 2017.

Real Patterns in Biological Explanation. Philosophy of Science Association, Atlanta, GA, November 2016.

There Is No Diachronic Cognitive Penetration. Joint Session of the Aristotelian Society, Cardiff, Wales, July 2016.

Getting Over Atomism. British Society for the Philosophy of Science, Cardiff, Wales, July 2016.

Inferentialism in Biological Practice. Society for the Philosophy of Science in Practice, Glassboro, NJ, June 2016.

Getting Over Atomism. Society for Philosophy and Psychology, Austin, TX, June 2016. (Poster)

A Contextualist Approach to Functional Localization. University of California, San Diego, May 2016

Functional Integration, Neural Coding, and Consumer Semantics. Rethinking the Taxonomy of Psychology Workshop. University of Western Ontario. April 2016. (Poster)

Data Graphs, Explanatory Relations, and Mechanistic Explanation. Society for Philosophy of Science in Practice. Aarhus, June 2015.

Multi-Modality and Defining the Senses. Ecological Perception: Amodal and Multi-Modal Trends. Edinburgh, May 2015.

Perceptual Integration, Modularity, and Cognitive Penetration (with Jonathan Cohen). Symposium paper. American Philosophical Association, Eastern Division. Philadelphia, December 2014.

Perceptual Context and the Nature of Neural Function. Society for Philosophy and Psychology. Vancouver, June 2014. (Poster)

Re-Cognizing Perception and Cognition. American Philosophical Association Central Division Meeting. Chicago, February 2014.

Perceptual Context and the Nature of Neural Function. Methodology in Neuroscience Workshop, University of Pittsburgh History and Philosophy of Science, November 2013. (Poster)

Scientific Reasoning and Scientific Diagrams. Diagrammatic Cognition: Discovery and Design workshop, Cognitive Science Society, Berlin, August 2013.

Mechanistic Diagrams as Search Organizers. Cognitive Science Society, Berlin, August 2013. (Poster)

Between Phenomenon and Mechanism: Diagrams as Vehicles of Intermediate Explanatory Reasoning. International Society for the History, Philosophy, and Social Science of Biology, Montpellier, July 2013.

Homogeneity Constraints and Reasoning about Complex Mechanisms. Society for Philosophy of Science in Practice, Toronto, June 2013.

Re-Cognizing Perception and Cognition. Society for Philosophy and Psychology, Providence, RI, June 2013. (Poster)

Why do Biologists Use so many Diagrams? (with Adele Abrahamsen, William Bechtel, and Ben Sheredos). Philosophy of Science Association, San Diego, November 2012.

Perception of Features and Perception of Objects (with Jonathan Cohen). Society for Philosophy and Psychology, Boulder, June 2012. (Poster)

Commentary on Joseph MacCaffrey, 'Reconceiving Semantic Vehicles: Lessons from Semantic Dementia'. Society for Philosophy and Psychology, Boulder, June 2012.

Perception of Features and Perception of Objects (with Jonathan Cohen). Symposium paper. American Philosophical Association, Pacific Division, Seattle, March 2012.

Intentions and the Brain. Southern Society for Philosophy and Psychology, Savannah, March 2012.

Commentary on Gualtiero Piccinini. 'The Ontology of Functions'. Southern Society for Philosophy and Psychology, Savannah, March 2012.

## **GRANTS**

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### **\*\*External Funding**

Co-PI, Research Corporation for Scientific Advancement, "Network Topology Underlying Circuit Dynamics During Flexible Cognitive Behavior." Award amount: \$165,000

Consultant, Templeton Grant No. TWCF0360, 2019-2021, Paths to Character: Promoting Agency, Trust, and Hope for Incarcerated Barbadian Adolescents through Community Engagement." Award amount: \$234,500.

Investigator, National Science Foundation Grant No. 1127640, Diagrams in Science, 2012-2013. Award amount: \$175,000.

### **\*\*Internal Grants**

Director, Tulane Lurcy Grant, Cognitive Studies. 2019-2020. Award amount: \$3500

Consultant, Carol Lavin Bernick Faculty Grant, "Identifying Risk and Developing Capabilities in Juvenile Offenders" (Phase 1), 2017-2018. Award Amount: \$10,000.

Consultant, Carol Lavin Bernick Faculty Grant, "Identifying Risk and Developing Capabilities in Juvenile Offenders" (Phase 2), 2019-2020. Award Amount: \$11,600.

## AWARDS

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Scialog Associate Fellow in the Cellular and Molecular Basis of Cognition (2022-2025).

Tulane University Convergence Award for Interdisciplinary Scholarship, Fall 2022.

Mortar Board Teaching Award, Tulane University, Spring 2016.

## TEACHING

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\*\*Courses at Tulane University

PHIL 6180: Mental Representation (x2)

PHIL 6170: Philosophy of Perception (x4)

PHIL 6105: Philosophy of Neuroscience (x6)

PHIL 3931: Altered Experience (x4)

PHIL 3933: Philosophy of Science (x3)

PHIL 1210: Elementary Symbolic Logic (x10)

COLQ 1030: Quest for Answers (x1)

## PROFESSIONAL EXPERIENCE

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Director, Tulane Cognitive Studies Program, 2020 – present.

Co-Managing Editor, The Brains Blog, June 2020 – present.

Co-Organizer, Philosophy of Neuroscience at the Gulf VII, 2024 Meeting, Pensacola.

Co-Program Chair, Society for Philosophy and Psychology 2024 Meeting, West Lafayette.

Chair, Philosophy of Science Public Event Committee, 2024 Meeting, New Orleans.

Guest Editor, The Brains Blog, June 2017 – June 2020.

Program committee member: Philosophy of Science Association, 2019-2020.

Reviewer:

*Australasian Journal of Philosophy, Avant, Biology & Philosophy, British Journal for the Philosophy of Science, Cognitive Processing, Cognitive Science Society, Consciousness and Cognition, Dialectica, European Journal for Philosophy of Science, European Journal of Neuroscience, Ergo, Frontiers in Psychology, History and Philosophy of the Life Sciences, International Studies in Philosophy of Science, Journal of Consciousness Studies, Mind and Language, Minds and Machines, MIT Press, New Ideas in Psychology, Philosopher's Imprint, Philosophy Compass, Philosophy and Phenomenological Research, Philosophical Psychology, Philosophy of Science, Philosophy, Theory and Practice in Biology, Philosophical Quarterly, Review of Philosophy and Psychology, Routledge, Society for Philosophy and Psychology, Society for the Metaphysics of Science, Studies in History and Philosophy of Science, Synthese, Topics in Cognitive Science.*