Researcher, Doctoral Student
Department of Machine Learning
Carnegie Mellon University
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Mel Andrews

Research Areas

AOS **Philosophy of Machine Learning & AI, General Philosophy of Science, Philosophy of Cognitive and Neurosciences, Philosophy of Biology,**.

AOC **Philosophy of Neuroscience, Information & Computation, Philosophy of Mind, AI Ethics**.

Work

Current **Predoctoral Researcher, Department of Machine Learning (MLD)**, Carnegie Mellon University.

Education

Current **PhD, Philosophy of Science**, University of Cincinnati.

2014 - 2018 **Bachelor of Science - Tufts University**, Psychology & Cognitive & Brain Sciences.

Fellowships, Grants, & Awards

2022, Summer **Fellow**, *Oxford & Czech Academia of Sciences*, Principles of Intelligent Behaviour in Biological & Social Systems, $9000 USD.

Teaching

2021, Fall **Instructor**, *University of Cincinnati*, PSYCH-1006 | PHIL-1006 | Introduction to Cognitive Science.

2021, Summer **Instructor**, *University of Cincinnati*, PSYCH-1006 | PHIL-1006 | Introduction to Cognitive Science.

2021, Spring **Instructor**, *University of Cincinnati*, PHIL-2029 | Medical Ethics: Moral Issues in Medical AI.

2020, Fall **Teaching Assistant**, *University of Cincinnati*, PHIL-1025 | Contemporary Moral Issues.

2020, Spring **Teaching Assistant**, *University of Cincinnati*, PSYCH-1006 | PHIL-1006 | Introduction to Cognitive Science.

2019, Fall **Teaching Assistant**, *University of Cincinnati*, PHIL-1000 | Introduction to Philosophy.

2018 **Teaching Assistant**, *Tufts University*, CSHD-0051 | Intellectual Development.

2017 - 2018 **Instructor**, *Binghamton University*, Co-leader of seminar series on contemporary topics in evolutionary theory for undergraduate students - hosting lectures from prominent biologists, philosophers of biology, and evolutionary theorists.

Publications

Andrews, M. (*2022*), Making Reification Concrete: A Response to Bruineberg et al. *Brain and Behavioural Sciences.*

Andrews, M. (*2021*), The Math is Not the Territory: Navigating the Free Energy Principle. *Biology & Philosophy. 36*(3), 1-19.

Andrews, M., and Polt, R. (*2020*), The Philosophers' Touch. *ETCetera.*

Andrews, M. & Feiten, E. (2018), Conference Report: The Generalized Theory of Evolution, *The Reasoner*, *12*(5).

Feldman, D. H. & Andrews, M. (*2017*), Parenting Talented Children, in *Handbook of Parenting,* (3rd ed.) (ed. Bornstein), Psychology Press.

Works In Progress

Invited Talks & Workshops

Andrews, M. (*2022*), *Workshop on the Free Energy Principle as Model Structure or Model Template,* presented at the Department of Philosophy, Universität Wien, Wien, A.T.

Andrews, M. (*2022*), *Workshop on role of mathematics in theorising in the cognitive and brains science,* presented at the Nencki School of Ideas in Neuroscience, Warsaw, P.L.

Andrews, M. (*2022*), *Workshop on metascience and theorising, Leiden, N.L.*

Andrews, M. (*2022*), *Reification in ML & the FEP* "The Free Energy Principle: Science, Tech and Philosophy" Conference, The Berlin School of Mind and Brain, Humboldt-Universität zu Berlin, Berlin, D.E.

Andrews, M. (*2021*), *Recognising & Rectifying Reification: Machine Learning & Model-Target Misidentification* Keynote Presented at COGNITIO 2021, Université du Québec à Montréal, Québec, C.A.

Refereed Talks & Workshops

Andrews, M. (*2021*), *Assessing the FEP in Scientific Practice* Talk Presented at the 5th International Conference on Interactivity, Language & Cognition: Integrating Quantitative and Qualitative Methods in the Cognitive and Language Sciences, Warszawa, P.L.

Andrews, M. (*2021*), *Machine Learning in Scientific Practice: Normative & Descriptive Aims* Presented at the CUNY Graduate Center Graduate Conference on Artificial Intelligence, N.Y., N.Y. U.S.A.

Andrews, M. (*2021*), *Machine learning & the scientific method: the case of the Free Energy Principle* Presented at Digital Studies of Digital Science, Université catholique de Louvain, Louvain-la-Neuve, B.E.

Andrews, M. (*2018*), *A Theory of Representation with Error in Deacon & Bickhard* Presented at The Peripatetic Conference for Cognitive Systems Modeling, Małe Ciche, P.L.

Andrews, M. (*2018*), *Mind the (Informational) Gap: Mind, Machine, & the Space in Between* Presented at a workshop on Machine Learning and Explanation in Cognitive Science hosted by the Czech Academy of Sciences, Prague, C.Z.

Andrews, M. (*2018*), *Life-mind (dis-)continuities: bridging biological selfhood and biosemiosis.* Presented at The 18th Annual Biosemiotics Gathering, Berkeley, C.A.

Andrews, M. (*2018*), *On the subject of evolution: towards a biological basis of subjectivity, selfhood, and agency.* Presented at The Science of Consciousness Conference, Tucson, A.Z.

Andrews, M. (*2018*), *Adapting evolution: complexity & culture within a universal Darwinian framework.* Presented at The Generalized Theory of Evolution Conference, Düsseldorf, D.E.

Conference Posters

Andrews, M. (*2020*), *Is the FEP Epistemologically Applicable?* Presented at POBAM 2020

Andrews, M. (*2018*), *Explanatory limits of blanket assumptions: the free energy principle and Markov blanket models of mind and life.* Presented at The Predictive Processing Conference, Medford, M.A.

Feldman, D.H. & Andrews, M. (*2018*), *The dynamic complexity of cultural construction.* Presented at the 48th annual meeting of the Jean Piaget Society: The Dynamics of Development: Process, (Inter-)action, & Complexity, Amsterdam, N.L.

Feldman, D. H. & Andrews, M. (*2017*), *Cultural evolution is not evolution.* Presented at the Society for the Study of Human Development's 2017 Annual Conference, Providence, R.I.

Andrews, M., Liu, S., & Spelke, E. (*2017*), *Do infants exhibit preferences for rational agents?* Presented to the Laboratory for Developmental Studies, Harvard University, Cambridge, M.A.

Organizational Experience

2022 **Conference Organizer**, *University of Cincinnati*, Machine Learning, Abstract Thought, and the Expanding Reach of A.I.: Ethical and Conceptual Frontiers, Featuring talks by Zachary Lipton, Kathleen Creel, Cameron Buckner, Subbarao Kambhampati, S. Matthew Liao, Mariya Toneva, & Ahmed Elgammal.

2019-2021 **Organized and ran international reading and working group on mathematical modelling across physics, biology, and neuroscience;**.

2018 **Conference Co-Organizer**, *Tufts University*, Predictive Processing: A Critical Evaluation of its Prospects, Featuring talks by Daniel Dennett, Lisa Feldman Barrett, Fiery Cushman, Bryce Huebner, Sam Gersham, Krzysztof Dołęga, Rosa Cao, Enoch Lambert, Matteo Colombo, & Philipp Schwartenbeck.

2018 **Organizer and Editor with David Sloane Wilson, Commentary**, *Reflections on the notion of 'teleology' & 'consciousness' in evolution*, Featuring contributions by Massimo Pigliucci, Eva Jablonka & Simona Ginsburg, Lenny Moss, Liane Gabora, Felipe Veloso, Steven Hayes, and Stanley Salthe.

Services to the Field

2021-2022 **Chair**, *University of Cincinnati Minorities in Philosophy (MAP) Chapter.*

2019 **Editor**, *The Cartesian Semantics of the Port Royal Logic.*

2022 **Reviewer**, *The British Journal for the Philosophy of Science (BJPS).*

2021 **Reviewer**, *Behavioral & Brain Sciences.*

2021 **Reviewer**, *Mind & Language.*

2020 **Reviewer**, *Biology & Philosophy.*

2020, 2021, 2022 **Reviewer**, *Synthese.*