

Dr. MAZVIITA CHIRIMUUTA

CURRICULUM VITAE

CONTACT

Address: 1017 Cathedral of Learning, University of Pittsburgh,
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EMPLOYMENT

2011- present. Assistant Professor (tenure track),
Department of History and Philosophy of Science, University of Pittsburgh.

2012 – present. Secondary faculty, Department of Philosophy, University of
Pittsburgh.

2011 – present. Adjunct faculty, Center for the Neural Basis of Cognition,
University of Pittsburgh and Carnegie Mellon University.

2010-2011 Post-doctoral Research Fellow, Department of Psychology,
University of Birmingham

2010-2012 Honorary Research Fellow, Department of Philosophy,
University of Bristol

2008-2009 James S. McDonnell Postdoctoral Research Fellow,
Philosophy, Neuroscience and Psychology program,
Department of Philosophy, University of Washington at St. Louis.

2005-2008 Australian Research Council Post-Doctoral Fellow, School of
Philosophy and Bioethics, Monash University.

2004 - Post-doctoral researcher, Istituto di Neuroscienze, CNR Pisa, Italy

EDUCATION

2004 - PhD University of Cambridge (Department of Physiology)
Supervisor: Dr. David Tolhurst

2000 - BSc University of Bristol (First class joint honours, Philosophy &
Psychology)

TEACHING

2012-present University of Pittsburgh

Graduate:

HPS 2631 Methods and Interpretation in Cognitive Neuroscience

HPS 2635 Central Problems in Systems Neuroscience

HPS 2647 Representation, Perspectives, and Pluralism.

HPS 2663 Perception

HPS 2699 Experimentation and Scientific Practice

Thesis Committee Service:

2013-present.

Joseph McCaffrey, "Mental Function and Cerebral Cartography: Functional Localization in Neuroimaging Research"

Lauren Ross, "Causal Explanation in the Biological Sciences: Accounting for Complexity"

Undergraduate:

HPS 616/1616 Artificial Intelligence and the Philosophy of Science.

HPS 1670 Philosophy of Neuroscience

HPS 1702 Junior/Senior Seminar

CMU 80-220 Philosophy of Science

2008-2009 Washington University at St. Louis.

Semester 1: Undergraduate Philosophy, Neuroscience and Psychology (PNP) seminar on perception and action.

Semester 2: Undergraduate Philosophy, Neuroscience and Psychology (PNP) course on brain, mind and consciousness.

2007 Monash University. Undergraduate honours course (4th year) in Philosophy of mind and cognitive science.

2001-2003 University of Cambridge. Supervision of undergraduate laboratory classes in the physiology of perception.

AWARDS

2013 Faculty Fellowship, Humanities Center, University of Pittsburgh.

2005-2008 Australian Post-Doctoral fellowship, Australian Research Council ('The Epistemology of Colour Vision' project, see below)

2000-2003 Doctoral studentship, Medical Research Council of UK

GRANTS

2010-2011 Wellcome Trust, *Value in People* award. £27,000

2005-2008 Australian Research Council Discovery-Projects Grant, 'The Epistemology of Colour Vision' with Ian Gold. AUS \$202,482
Role - Chief Investigator.

PUBLICATIONS

Book

Chirimuuta, M. (2015) *Outside Colour: Perceptual Science and the Puzzle of Colour in Philosophy*. Cambridge, MA: MIT Press

Articles – Philosophy of Neuroscience and Perceptual Psychology

Chirimuuta, M. (in press) “Perceptual Pragmatism and the Naturalised Ontology of Colour.” *Topics in Cognitive Science*.

Chirimuuta, M. and Kingdom, F. A. A. (in press) “The Uses of Colour Vision: Ornamental, Practical, and Theoretical.” *Minds and Machines*.

Chirimuuta, M. (2014) Psychophysical Methods and the Evasion of Introspection, *Philosophy of Science* 81(5):914-926

Chirimuuta, M. (2014) Minimal Models and Canonical Neural Computations: The Distinctness of Computational Explanation in Neuroscience, *Synthese* 191:127-153

Chirimuuta, M. (2013) Extending, Changing and Explaining the Brain. *Biology and Philosophy*, 28 (4):613-638.

Chirimuuta, M. (2008)
Reflectance Realism and Colour Constancy: What would count as scientific evidence for Hilbert’s ontology of colour?
Australasian Journal of Philosophy, 86(4), 563-582

Articles – Vision Science

Tolhurst, D.J., To, M.P.S., Chirimuuta, M., Lovell, P.G., Chua, P.Y. and Troscianko, T. (2010) Magnitude of perceived change in natural images may be linearly proportional to differences in neuronal firing rate. *Seeing and Perceiving*, 23:349-372.

Chirimuuta, M., Morrone, M.C. & Burr, D. (2007). Perceptual learning of modality specific visual attentional effects. *Vision Research*, 47, 60-70

Chirimuuta, M., & Tolhurst, D.J. (2005). Does a Bayesian model of V1 contrast coding offer a neurophysiological account of human contrast discrimination? *Vision Research*, 45, 2943-2959

Chirimuuta, M., & Tolhurst, D.J. (2005). Accuracy or identification of grating contrast by human observers. *Vision Research*, 45, 2960-2971

Chirimuuta, M., Clatworthy, P.L. & Tolhurst, D.J. (2003). Coding of the contrasts in natural images by visual cortex (V1) neurons: A Bayesian approach. *Journal of the Optical Society of America A*, 20, 1253-1260.

Clatworthy, P.L., Chirimuuta, M., Lauritzen, J.S. & Tolhurst, D.J. (2003). Coding of the contrasts in natural images by populations of neurons in primary visual cortex (V1). *Vision Research*, 43, 1983-2001.

Peer Reviewed Book Chapters

Chirimuuta, M. (forthcoming) Colour and the Philosophy of Science. In Brown and MacPherson (eds.), *The Routledge Handbook of Philosophy and Colour*

Chirimuuta, M. (2014) The Metaphysical Significance of Colour Categorization: Mind, World, and their Complicated Relation. In Anderson, Biggam, Hough & Kay (eds.) *Colour Studies: a Broad Spectrum*. Amsterdam and Philadelphia: John Benjamins

Chirimuuta, M. & Paterson, M.W.D. (2014) *A Methodological Molyneux Question: Sensory Substitution, Plasticity and the Unification of Perceptual Theory* In D. Stokes & M. Matthen (eds.) *Perception and its Modalities*, Oxford University Press.

Chirimuuta, M (2011) Touchy-Feely Colour. In Biggam, Hough and Simmons (eds.) *New Directions in Colour Studies*. Amsterdam and Philadelphia: John Benjamins

Tolhurst, D.J., To, M.P.S., Chirimuuta, M., Lovell, P.G., Chua, P.Y. and Troscianko, T. (2011) Magnitude of perceived change in natural images may be linearly proportional to differences in neuronal firing rate. In J. A. Soloman (ed.) *Fechner's Legacy in Psychology: 150 Years of Elementary Psychophysics*. Leiden and Boston: Brill (reprint of *Seeing and Perceiving* 2010 publication)

Chirimuuta, M. & Gold, I.J. (2009) The embedded neuron, the enactive field?. In Bickle, J. (ed.) *Handbook of Philosophy and Neuroscience*. Oxford: Oxford University Press. (Paperback edition published in 2012.)

Book Reviews

Chirimuuta, M. (2011) *Perception*. Review of Bence Nanay (ed.) *Perceiving the World*. 40(7), 883-885.

Chirimuuta, M (2010). *International Studies in the Philosophy of Science*. Review of Jonathan Cohen's *The Red and the Real*. 24: 3, 339 — 342.

Chirimuuta, M (2009). Review of Robert Arp's *Scenario Visualization*. *Quarterly Review of Biology*, 84(2), 198.

Works as Editor

Special issue for *Minds and Machines* on colour in philosophy and science. In press 2015.

INVITED TALKS AND SEMINARS

2014 “Ontology of Colour, Naturalised.” Minnesota Center for Philosophy of Science, Colloquium Series.

2013 “Colour and the Brain.” Mind-Brain Conference, Korea Institute for Advanced Study.

“Efficient Coding Explanation in Neuroscience.” Explaining without Causes Workshop, University of Cologne.

“Colour Metaphysics, and the Brain.” Keynote lecture at the Biosciences Annual Retreat, University of Pittsburgh.

“Perceptual Pragmatism and the Secondary Qualities.” Colloquium at Humanities Center, University of Pittsburgh.

“Colour Adverbialism.” Workshop on Colour and Content, University of Antwerp.

2012 “Colour: In Search of the ‘Basic Phenomenological Facts’”. Barnard-Columbia Perception Workshop, Dept. of Philosophy, Barnard College.

“Ontology for Vision Science”. Behrmann-Tarr-Plaut lab meeting, Dept. of Psychology, Carnegie-Mellon University.

“Some puzzles about brain computer interface.” Intelligent Systems Program seminar series, University of Pittsburgh.

2011 “The Inner (and Outer) Workings of Colour” Dept. of History & Philosophy of Science, University of Pittsburgh

“The Inner (and Outer) Workings of Colour” *More or Less: Varieties of Cortical Colour Vision*, Vancouver BC.

2010 “Colouring In and Colouring For”
Bristol Vision Institute, University of Bristol.

“Revealing the Janus Faces of Colour”
Department of Philosophy, University of Bristol.

2008 “Colouring In and Colouring For”
James Martin Seminar, Department of Philosophy, University of Oxford.

“Touchy Feely Colour”, Department of Philosophy, University of Bristol.

“Does ‘evolved seeing red’ imply ‘ought to see red’?”
Department of Philosophy, Washington University at St. Louis.

“Jackson and the “what?”, “how?” and “why?” of colour”

Department of Philosophy, University of Western Ontario.

2007 “Ontological Stalemate: How new is the ecological view of colour?”
Department of Philosophy, University of Glasgow.

“Naturalism and the Philosophy of Perception”
Department of Psychology, University of Glasgow

2006 “Does ‘evolved seeing red’ imply ‘ought to see red’?”
School of Philosophy & Bioethics, Monash University.

“Attention and Perceptual Learning”
School of Ophthalmology, State University of New York. (Co-authors, M.C .
Morrone and D. Burr)

“Defining colour and colour vision”
School of Biological Sciences, Queen Mary College, University of London.

“On the possibility of a naturalised metaphysics of colour.”
Department of Philosophy, University of Cambridge.

2005 “Jackson and the “what?”, “how?” and “why?” of colour.”
School of Philosophy & Bioethics, Monash University.

CONTRIBUTED PRESENTATIONS – PHILOSOPHY

*(Primary author other than myself)

2014 “The Stimulus error, “Equivocal Correlation”, and Perceptual Constancy”.
&HPS5, Vienna.

“Efficient coding explanation in neuroscience: Causal and non-causal”. *British Society for the Philosophy of Science*, Cambridge UK.

“Vision, Perspectivism, and Haptic Realism”. *PSA Symposium on Perspectivism*, Chicago.

2013 ““Cool Experiments” and “False Models”: Intervening and Representing in Neural Systems”. *Workshop on Experimentation in Neuroscience, Philosophy of Science Center*, Pittsburgh, PA

“Colour Relationism and Categorisation” *British Society for the Philosophy of Science*, Exeter UK

“Minimal Models and Canonical Neural Computations” *Lunchtime talk, Philosophy of Science Center*, Pittsburgh, PA

2012 “Psychophysics and the Evasion of Introspection.” Symposium on introspective evidence in the cognitive neuroscience of perception (organisers: Uljana Feest and Gary Hatfield). *Philosophy of Science Association*, San Diego CA.

“Colour Relationism is Realism Enough.” *Joint Session of the Aristotelian Society and the Mind Association*, Stirling UK.

“Philosophy and the Colour Categories”. *Progress in Colour Studies 12*, Glasgow UK.

“Cognitive contributions to color constancy: a case for a subjectivist color ontology” with Abdul-Kareem H Ahmed*. *Cognitive Neuroscience Society*, Chicago IL.

“What’s to be Learned from Neural Decoding Models?” *British Society for the Philosophy of Science*, Stirling UK.

2011 “Extending, Changing, and Explaining the Brain.” *Society for the Philosophy of Science in Practice*, Exeter UK.

“Changing our Minds about Plasticity and Localisation of Brain Function” *Institute of British Geographers – Symposium on Plasticity*, London UK.

2008 “Touchy Feely Colour”. *Progress in Colour Studies 08*, Glasgow, UK

“Descartes’ Dream and Ames’ Room.”
Joint Session of the Aristotelian Society and the Mind Association, Aberdeen UK.

2007 “Naturalised Ontologies of Colour”
Meeting of the British Society for the Philosophy of Science, Bristol, UK

“Is the teleosemantics project adaptationist?”
Joint Session of the Aristotelian Society and the Mind Association, Bristol, UK

2004 “Experimentation and defining attention”
Joint meeting of the Society for Philosophy and Psychology and the European Society for Philosophy and Psychology, Barcelona.

CONFERENCE PRESENTATIONS – VISION SCIENCE

*(Primary author other than myself)

Selected Conference Presentations

2012 Attentional Effects of Working Memory Load and Consolidation During Visual Search. *Vision Sciences Society*, Naples FL (Co-authors, K. Tsevtanov and G.W. Humphreys)

Modelling grating and bandpass natural-scene contrast-discrimination dippers. *European Conference on Visual Perception* (Co-authors, M. To*, E. J. A. Turnham and D.J. Tolhurst)

2007 Modelling natural scene dipper functions.
European Conference on Visual Perception (Co-authors, Z. Jiwa and D.J. Tolhurst)

2006 Perceptual learning and modality specific visual attentional effects.

European Conference of Visual Perception (Co-authors, M.C. Morrone and D. Burr)

2004 Natural scenes and the dipper function.

European Conference on Visual Perception (Co-author, D.J. Tolhurst)

2003 *Meeting of the Vision Sciences Society*

Can a 'dipper' function model of primary visual cortex predict pattern discrimination processing?

Chirimuuta, M. & Tolhurst, D. J. *Journal of Vision*, 3(9), 357a,

2002 *European Conference of Visual Perception*

Simple-cell contrast responses and the transducer function. Chirimuuta, M., Clatworthy, P.L. & Tolhurst, D.J. *Perception*, 31, 137A.

2002 *Federation of European Neurosciences*

A simple cell model of contrast discrimination. Chirimuuta M., Clatworthy P. L. & Tolhurst D. J. *FENS Abstracts*, 1, 083.2.

Experimental and computational study of the sparse responses of simple cells in striate cortex (V1) : Implications for models of the sparse-coding of information in natural scenes.

Tolhurst D. J., Smyth D., Thompson I. D., Willmore B., Chirimuuta M. & Clatworthy P. L. (2002). *FENS Abstracts*, 1, 083.18.

2000 *European Conference of Visual Perception*

Perceived contrast of filtered natural images. Troscianko, T., Chirimuuta, M., Parraga, A., Tolhurst, D.J. (2000). *Perception*. 29 (1): 19.

1999 *Meeting of the Applied Vision Association*

Perceived contrast of natural images is mediated by higher order statistics.

Troscianko, T., Chirimuuta, M., Parraga, A., Tolhurst, D.J. (2000). *Perception*. 29: 82-82, Suppl. S.

Published Peer-Reviewed Proceedings

Tolhurst, D.J. and Chirimuuta, M. (2004). The accuracy with which human observers identify the contrast of sinusoidal gratings. *Journal of Physiology* 557P, C64.

Chirimuuta, M. and D.J. Tolhurst (2004). Contrast masking and facilitation in human psychophysical experiments using natural scene stimuli. *Journal of Physiology* M. 555P C163

Chirimuuta, M., Clatworthy, P.L. & Tolhurst, D.J. (2003). Computer simulation of the role of priors in the visual cortex (VI) contrast code. *Journal of Physiology*, 548P, p.115

Clatworthy, P.L., Chirimuuta, M., Lauritzen, J.S., Tolhurst, D.J. (2001).

Computer models of contrast coding by pools of neurons in primary visual cortex (V1). *J. Physio.* 536.P, 41-42P.

PEER REVIEWING

Australasian Journal of Philosophy (2010)
Baltic International Yearbook for Cognition Logic and Communication (2014)
British Journal of Philosophy of Science (2008, 2009, 2011, 2012, 2014)
Erkenntnis (2014)
European Journal of Philosophy of Science (2013)
Latu Senu (2012)
Mind (2012)
Philosophy of Science (2012, 2015)
Philosophical Psychology (2013)
Philosophical Quarterly (2013)
Studies in HPS, Part C (2014)
Synthese (2015)

UNIVERSITY SERVICE

2011- present. Webmaster for History & Philosophy of Science, University of Pittsburgh
2013-14. Committee member for History & Philosophy of Science video production project.
2013 Organiser for workshop on Experimentation in Neuroscience, Center for Philosophy of Science, University of Pittsburgh.
2015 Co-organiser for workshop on Robustness in Neuroscience, Center for Philosophy of Science, University of Pittsburgh.

PROGRAMME COMMITTEE SERVICE

2014 "Explanation Beyond Causation" conference, hosted by the Munich Center for Mathematical Philosophy

"Overcoming Mind-Brain Dualism in 21st Century Medicine" conference, hosted by Center for Philosophy of Science, University of Pittsburgh.

OTHER QUALIFICATIONS

DipABRSM in Pianoforte Performance, 2003