PAUL LINTON, PhD

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INTRODUCTION

I'm a NOMIS Foundation Fellow at Columbia University at the Italian Academy for Advanced Studies, and an Affiliate of Niko Kriegeskorte's Lab at the Zuckerman Mind Brain Behavior Institute. My work focuses on:

1. Developing a New Theory of Visual Experience,
2. Illustrating its Significance through Five New Visual Illusions,
3. Linking this Theory to Early Visual Processing in the Brain, and
4. Using this Theory to Develop a New Computational Model of Visual Experience.

I am also leading a Generative Adversarial Collaboration on the Primary Visual Cortex (V1) and was the lead organizer of a Royal Society Scientific Meeting and Volume on New Approaches to 3D Vision.

In 2025, I was awarded the David Marr Medal by the Applied Vision Association (the UK's leading Vision Science association), awarded once every two years to "recognize the achievements of an outstanding vision scientist in the early part of their career."

CURRENT POSITIONS

Columbia University, Italian Academy for Advanced Studies 2024 – 2028
NOMIS Foundation Fellow + PI for 'New Theory of Visual Experience' Project New York, NY
Collaborator: Prof. Nikolaus Kriegeskorte (Neuroscience + AI)

Columbia University, Presidential Scholar in Society and Neuroscience 2022 – 2028
Independent Fellowship in Neuroscience, AI, and Philosophy New York, NY
Mentors: Prof. Nikolaus Kriegeskorte (Neuroscience + AI)
Prof. Christopher Peacocke (Philosophy)

Columbia University, Italian Academy for Advanced Studies 2022 – 2024
2 x Fellow in Art, Humanities, and Neuroscience New York, NY

EDUCATION

PhD, Vision Science, Centre for Applied Vision Research, City, University of London 2016 – 2021
Supervisors: Prof. Christopher Tyler* (Vision Science), Dr. Simon Grant (Vision Science) London, UK
*Head of Brain Imaging, Smith-Kettlewell Eye Research Institute, San Francisco

Graduate Courses in Philosophy and Economics, NYU (+ Harvard and Cambridge) 2008 – 2011
Supervisor: Prof. Amartya Sen (Philosophy and Economics, Harvard) New York, NY

BA, Law with European Law, University of Oxford 2004 – 2008
Gluckstein Scholar, Hanbury Scholar, Exhibitioner Oxford, UK

PREVIOUS POSITIONS

City, University of London, Centre for Applied Vision Research 2021 – 2022
Research Fellow in Visual Neuroscience London, UK

Meta (Facebook) Reality Labs, Display Systems Research Sept – Dec 2018
Part of the DeepFocus Team [press release] (PhD Research Intern) Redmond, WA

University of Oxford, Faculty of Law 2011 – 2015
Fixed-Term Lecturer in Moral and Political Philosophy Oxford, UK

University College London, Department of Philosophy Jan – Aug 2014
Fixed-Term Lecturer in Philosophy London, UK

University of Oxford, St Hilda's College 2012 – 2013
Fixed-Term Lecturer and College Tutor in Law and Legal Philosophy Oxford, UK

BOOK

Linton, P. (2017). *The Perception and Cognition of Visual Space* (Palgrave Macmillan) [Link to full text]
Single authored 176-page book developing a new two-stage theory of 3D vision, according to which perceived stereo shape is processed independently of visual scale, perspective, shading, and motion

Reviewed in *Perception* [Link]. Featured on the *Brains Blog*, the leading online forum for cognitive science:
Post One / Post Two / Post Three / Post Four / Post Five

EDITED VOLUME

Linton, P., Morgan, M., Read, R., Vishwanath, D., Creem-Regehr, S., Domini, F. (eds.) (2023). 'New Approaches to 3D Vision', *Philosophical Transactions of the Royal Society B* [Link]

PAPERS

Linton, P. (under review), 'Linton Stereo Illusion' [Link]

Develops new stereo vision illusion that appears to show that perceived stereo shape simply reflects retinal disparities, and not the physical geometry of the scene, confirming Linton (2023)'s 'Minimal Theory'

Linton, P. (2023). 'Minimal Theory of 3D Vision: New Approach to Visual Scale and Visual Shape', in Linton, Morgan, Read, Vishwanath, Creem-Regehr, Domini (eds.), 'New Approaches to 3D Vision', *Philosophical Transactions of the Royal Society B* [Link]

Argues for a new account of visual scale (perceived size and distance) and visual shape (perceived 3D geometry) based on my experimental findings (below) that the visual system does not use 'vergence' (the angular rotation of the eyes) to triangulate distance. Also argues that the same approach should be applied to Artificial Intelligence, which has traditionally struggled with biologically plausible models of 3D vision

Linton, P., Morgan, M., Read, J., Vishwanath, D., Creem-Regehr, S., Domini, F. (2023), 'New Approaches to 3D Vision', in Linton, Morgan, Read, Vishwanath, Creem-Regehr, Domini (eds.), 'New Approaches to 3D Vision', *Philosophical Transactions of the Royal Society B* [Link]

Explores how AI + Computer Vision, Animal Navigation, and Human Vision, are all grappling with the very same problem: what is the most appropriate representation for 3D vision and action?

Linton, P. (2021). 'V1 as an Egocentric Cognitive Map', *Neuroscience of Consciousness*, 7(2), 1–19 [Link]

Argues that the processing of 3D depth in V1 appears to operate at two distinct levels: our visual experience and post-perceptual cognition. Hypothesises that these two levels of processing can be differentiated in the different layers of V1 to argue for a low-level (feedforward V1) account of visual experience

Linton, P. (2021). 'Does Vergence Affect Perceived Size?', *Vision*, 5(3), 33 [Link]

Demonstrates that 'vergence' (the angular rotation of the eyes) does not contribute to our perception of size, with a discussion of the implications for size constancy. Invited for publication by Prof. Mel Goodale FRS and Dr. Robert Whitwell for their special issue on 'Size Constancy for Perception and Action' [Link]

Linton, P., (2021). 'Conflicting shape percepts explained by perception cognition distinction', *Proceedings of the National Academy of Sciences*, 118 (10) e2024195118 [Link]

Letter to the Editor in response to Morales et al. (2020). 'Sustained representation of perspectival shape', *PNAS*, 117(26), 14873-82 [Link]. Provided inspiration for new experiments in Morales et al. (2021). 'Reply to Linton: Perspectival interference up close', *PNAS*, 118 (28) e2025440118 [Link]

Linton, P. (2020). 'Does Vision Extract Absolute Distance from Vergence?', *Attention, Perception, & Psychophysics*, 82, 3176–95 [Link]

Demonstrates that 'vergence' (the angular rotation of the eyes) does not provide absolute distance information to the visual system, with discussion of implications for distance perception
Featured on the Psychonomic Society's "All Things Cognition" podcast [Link]

COMMENTARIES

Golan et al. (2023), 'Deep neural networks are not a single hypothesis but a language for expressing computational hypotheses', *Behavioral and Brain Sciences* [Link]

Competitively selected response to Bowers et al. (2022), 'Deep Problems with Neural Network Models of Human Vision' [Link], explaining how AI can contribute to our understanding of human vision

PREPRINT

Linton, P. (2019). 'Would Gaze-Contingent Rendering Improve Depth Perception in Virtual and Augmented Reality?', *ArXiv*, 1905.10366 [cs.HC][Link]

First person to propose updating the camera frustum in virtual reality with eye movements to account for 'ocular parallax' (differences between centre of rotation and nodal point of the eye). Show that this is important because these small offsets can lead to distortions in virtual and augmented reality

LEAD ORGANIZER: CCN GENERATIVE ADVERSARIAL COLLABORATION

"Is V1 a Cognitive Map?", Cognitive Computational Neuroscience Conference (August 2024) [Link]
Competitively awarded Generative Adversarial Collaboration

Paul Linton (Columbia University), **David Heeger** (New York University), **Tony Movshon** (New York University) **Lars Muckli** (University of Glasgow), **Hendrikje Nienborg** (National Eye Institute), **Paolo Papale** (Netherlands Institute for Neuroscience), **Andrew Parker** (University of Magdeburg), **Lucy Petro** (University of Glasgow), **Pieter Roelfsema** (Netherlands Institute for Neuroscience), **Bharath Talluri** (National Eye Institute), **Hadi Vafaii** (UC Berkeley), **Petra Vetter** (University of Fribourg), **Cheng Xue** (University of Chicago), **Jacob Yates** (UC Berkeley), **Li Zhaoping** (Max Planck Institute for Biological Cybernetics), **Nikolaus Kriegeskorte** (Columbia University)

Proposal [Link]. Kick-Off Meeting at CCN at MIT [Video]. Full schedule at end of CV

LEAD ORGANIZER: ROYAL SOCIETY DISCUSSION MEETING + VOLUME

"New Approaches to 3D Vision", Royal Society Discussion Meeting (Nov 2021) [Link]
Royal Society's most prestigious, and most competitive, scientific meeting format

Led, organized with Prof. Michael Morgan FRS, Prof. Jenny Read, Dr. Dhanraj Vishwanath, Prof. Sarah Creem-Regehr, and Prof. Fulvio Domini. Meeting covered Computer Vision + AI, Animal Navigation, and Human Vision, with representatives from Google DeepMind, Google Robotics, Meta (Facebook) Reality Labs, and Microsoft Research. Over 800 attendees. Full schedule at end of CV

LEAD ORGANIZER: CCN COMMUNITY EVENT

"Conversations on Consciousness: How the CCN Community Can Contribute"
Cognitive Computational Neuroscience Conference (August 2025) [Link]
Competitively awarded Community Event with co-organizers Megan Peters (UC Irvine), Steve Fleming (University College London), and Lars Muckli (University of Glasgow)

AWARDS

David Marr Medal (2025), Applied Vision Association (AVA)
Awarded once every two years by the UK's leading Vision Science association to "recognize the achievements of an outstanding vision scientist in the early part of their research career."

Gluckstein Scholarship, Lincoln College, University of Oxford, for "demonstrated academic excellence"

Hanbury Scholarship, Lincoln College, University of Oxford, for "demonstrated academic excellence"

Exhibitioner, Lincoln College, University of Oxford, for "demonstrated academic excellence"

FUNDING

NOMIS Foundation, Independent Research Grant as sole PI: 'New Approach to 3D Vision'
4-Years funding at Italian Academy for Advanced Studies, Columbia University (2024-2028)

Cognitive Computational Neuroscience Conference for "Is V1 a Cognitive Map?" (2024)
Hosting major international Generative Adversarial Collaboration, kick-off meeting at MIT

Presidential Scholar in Neuroscience and Society (PSSN), Columbia University (2022-2025)
3-Year Independent Fellowship with research funding on neuroscience of 3D vision

Fellowship of the Italian Academy for Advanced Studies, Columbia University (2022-2024)
2 x 1-Year Fellowship in Art, Humanities, and Neuroscience (going towards PSSN funding)

Royal Society Scientific Meeting Award for "New Approaches to 3D Vision" (2021)
Funding to host major international conference at Royal Society

Elsevier / Vision Research Travel Award for Vision Sciences Society Meeting (2020)

Grindley Grant, Experimental Psychology Society Travel Award for Researchers in Touch Meeting (2019)

Worshipful Company of Saddlers Travel Award for European Conference on Visual Perception (2018)

KEYNOTE LECTURES

Linton, P., 'New Theory of Visual Experience', December 2025
David Marr Medal (2025) Keynote Lecture at Applied Vision Association Aston, UK

PEER REVIEWED CONFERENCE PRESENTATIONS

Linton, P., 'Five Illusions Challenge Our Understanding of Visual Experience', August 2025
Talk at European Conference on Visual Perception (ECVP) Mainz, DE
and 'Five Illusions Challenge Our Understanding of Visual Experience'
at European Conference on Visual Perception (ECVP) Demo Night

Linton, P., 'Five Illusions Challenge Our Understanding of Visual Experience', August 2025
TBA at Cognitive Computational Neuroscience Conference (CCN) [Link] Amsterdam, NL

Linton, P., 'Experiential3D: Four Illusions Challenge Our Understanding May 2025
of 3D Visual Experience', Poster at Vision Sciences Society (VSS) [Link] St. Petersburg, FL
and 'Five Illusions Challenge Our Understanding of Visual Experience'
at Vision Sciences Society (VSS) Demo Night [Link]

Linton, P., 'Five Illusions Challenge Our Understanding of Visual Experience', May 2025
Talk at Society for Philosophy and Neuroscience (SPAN) St Louis, MO

Linton, P., 'Size and Shape Constancies Do Not Affect Perceived Angular Size: April 2025
Linton Size Constancy and Shape Constancy Illusions', Liverpool, UK
Talk at Applied Vision Association (AVA) [Link]

Linton, P., 'Lightness and Color Constancies Do Not Affect Perceptual Appearance: April 2025
Linton Lightness and Color Constancy Illusions', Liverpool, UK
Poster at Applied Vision Association (AVA) [Link]

Linton, P., 'Visual Scale is Governed by Horizontal Disparities: Linton Scale Illusion', December 2024
Poster at Applied Vision Association (AVA) [Link] Cardiff, UK

Linton, P., 'Depth Cue Integration is Cognitive Rather than Perceptual: December 2024
Linton Un-Hollow Face Illusion and Linton Morphing Face Illusion', Cardiff, UK
Poster at Applied Vision Association (AVA) [Link]

Linton, P. & Kriegeskorte, N., 'Perceived Stereo Depth reflects Retinal Disparities, August 2024
not 3D Geometry', Poster at European Conference on Visual Perception (ECVP) Aberdeen, UK
[Abstract] and 'Perceived Stereo Depth reflects Retinal Disparities, not 3D Geometry',
at European Conference on Visual Perception (ECVP) Demo Night

Is V1 a Cognitive Map? (Introduction to the Generative Adversarial Collaboration) August 2024

Cognitive Computational Neuroscience Conference (CCN), MIT [Link] — Boston, MA

Linton, P. & Kriegeskorte, N., 'Perceived Stereo Depth reflects Retinal Disparities, not 3D Geometry', Vision Sciences Society (VSS) Demo Night [Abstract] — May 2024, St. Petersburg, FL

Linton, P. & Kriegeskorte, N., 'Perceived Stereo Depth reflects Retinal Disparities, not 3D Geometry', Talk at Applied Vision Association (AVA) [Abstract] — March 2024, Loughborough, UK

Linton, P., 'Consciousness: How Low Can You Go?' [Poster][Twitter Thread] — June 2023
Poster at Association for the Scientific Study of Consciousness (ASSC) — New York, NY

Linton, P., 'No Vergence Size Constancy' — June 2020
Poster at Vision Sciences Society (VSS) [Poster][Poster Walkthrough] — Online

Linton, P., 'Does Human Vision Triangulate Absolute Distance?' [Talk] — Jan 2020
Talk at '3D Worlds from 2D Images', British Machine Vision Association (BMVA) — London, UK

Linton, P., 'Does Vergence Explain the Taylor Illusion?' — Dec 2019
Talk at Applied Vision Association (AVA) [Abstract] — Cardiff, UK

Linton, P., 'Do We See Scale?' [Poster] — July 2019
Poster at Association for the Scientific Study of Consciousness (ASSC) — Ontario, Canada

Linton, P., 'Re-Evaluating Vergence as a Distance Cue' — Aug 2018
Talk at European Conference on Visual Perception (ECVP) [Abstract] — Trieste, Italy

Linton, P., 'How Do We See Distance in VR' [Abstract] — June 2018
Poster at 'Frontiers in Virtual Reality', University of Rochester — Rochester, NY

Linton, P., 'Are Vergence and Accommodation Effective Cues to Distance?' — March 2018
Talk at Scottish Vision Group (SVG) — Glencoe, UK

INVITED TALKS

New Theory of Visual Experience — Nov 2025
Cognitive & Neural Computation Lab, Yale (invited by Prof. I. Yildirim) — New Haven, CT

Minimal Theory of 3D Vision: New Approach to Visual Scale and Visual Shape — Mar 2024
Royal Holloway University (invited by Dr. Matteo Lisi) — London, UK

Minimal Theory of 3D Vision: New Approach to Visual Scale and Visual Shape — Feb 2024
Imaging Science and Cognitive Science, Rochester Institute of Technology, and Center for Visual Studies, University of Rochester (invited by Prof. Gabriel Diaz) — Rochester, NY

Minimal Theory of 3D Vision: New Approach to Visual Scale and Visual Shape — Oct 2023
NYU Philosophy of Mind (invited by Prof. David Chalmers and Prof. Ned Block) — New York, NY

Visual Scale and Visual Shape at 'Art and Science of Seeing' (Royal Society of Arts) — May 2023
(invited by Dr. Aaron Hertzmann, Adobe and Prof. Robert Pepperell, Cardiff) — London, UK

Minimal Theory of 3D Vision: New Approach to Visual Scale and Visual Shape — April 2023
Perception & Action Seminar, Brown University (invited by Prof. Fulvio Domini) — Providence, RI

Four Challenges for Human 3D Vision — Jan 2022
Cognitive & Neural Computation Lab, Yale (invited by Prof. I. Yildirim) — New Haven, CT
and Computational Vision Lab, Yale (invited by Prof. S. Zucker)

Four Challenges for Human 3D Vision — Jan 2022
Visual Inference Lab, Columbia (invited by Prof. Nikolaus Kriegeskorte) — New York, NY

Four Challenges for Human 3D Vision — Nov 2021
Computational Cognitive Science Lab, MIT (invited by Prof. Josh Tenenbaum) — Cambridge, MA

New Approaches to Visual Scale and Visual Shape [Talk] — Nov 2021
Royal Society Meeting "New Approaches to 3D Vision" — Online

[Title Redacted] — Aug 2021
Meta (Facebook) Reality Labs — Online

Size and Distance Perception in Virtual and Augmented Reality [Talk] — June 2021
Optical Society (OSA), Technical Group on Display Technology — Online

Size and Distance Perception in Virtual and Augmented Reality — June 2021
Virtual Environments and Computer Graphics Group, UCL (invited by Prof. Kaan Akşit) — Online

The Perception and Cognition of Visual Space — Feb 2021
Institute of Philosophy (invited by Prof. Chris Frith FRS FBA) — London, UK

The Paradox of Visual Scale [Cancelled due to pandemic] [Advert] — April 2020
Center for Cognitive Science, Rutgers (invited by Prof. Thomas Papathomas) — New Brunswick, NJ

[Title Redacted] — Dec 2018
Meta (Facebook) Reality Labs — Redmond, WA

PUBLIC ENGAGEMENT

Speaker at Mind, Brain, Society at Columbia's Zuckerman Institute [Link] — March 2025
Public outreach event presenting my work on 3D vision in an accessible way — New York, NY

Presidential Scholars Research Symposium at Columbia's Zuckerman Institute — August 2024
Public outreach event presenting my work on 3D vision in an accessible way — New York, NY

Illusion Night at Aberdeen Art Gallery (European Conference on Visual Perception) — August 2024
Public event demonstrating my Linton Stereo Illusion to members of the public — Aberdeen, UK

Speaker on panel at the Helix Center on *Vision*, with Ken Miller (Columbia), Kevin Chan (NYU), Elissa Aminoff (Fordham), and Andrew Shum [Link][Video] Part of a 5 part series on 'the Senses' [Touch][Taste][Smell][Sound][Vision] — May 2024, New York, NY

Speaker at public event at Columbia's Zuckerman Institute on *Philosophy and Neuroscience*, with talks by John Morrison (Philosophy) and Nedah Nemati (History & Philosophy of Science), moderated by Stuart Firestein (Biological Sciences) [Link] — April 2024, New York, NY

Organiser and speaker at public event on *Designing Space*, with talks by Steven Holl (Architect, Steven Holl Associates), Prof. Anjan Chatterjee (Neuroscientist, UPenn), and Nitzan Bartov (Research Designer, CTRL Labs, Meta Reality Labs) [Link][Video] — Sept 2023, New York, NY

Panelist discussing the film *Blind Eye Artist* (2023) after its premiere at the Harlem International Film Festival (representing Columbia's Zuckerman Institute) — May 2023, New York, NY

Organiser and speaker at public event on Royal Society volume *New Approaches to 3D Vision*, with talks by Prof. Fulvio Domini (Brown), Prof. Kate Jeffery (Glasgow), and Dr. Ida Momennejad (Microsoft Research) [Link][Video] — Feb 2023, New York, NY

Psychonomic Society's "All Things Cognition" Podcast [Link] Discussing my work: 'Knocking a Longstanding Theory of Distance Perception' — March 2021, Online

EDITOR

Lead Editor, Philosophical Transactions of the Royal Society B (Volume: "New Approaches to 3D Vision")

REVIEWER

British Journal for the Philosophy of Science / Consciousness and Cognition / European Journal of Neuroscience / Investigative Ophthalmology & Vision Science / Journal of Cognitive Neuroscience / Journal of Vision ("Exceptional Reviewer") / Perception / i-Perception / Philosophical Transactions of the Royal Society B / Psychonomic Bulletin & Review / Psychological Review / Vision / Vision Research

TEACHING EXPERIENCE – COURSE LECTURER

Oxford University, Fixed-Term Lecturer in Law (Moral and Political Philosophy) — 2011 – 2015

Led tutorial teaching of Moral and Political Philosophy at the Oxford Law Faculty

Taught 3rd Year Oxford undergraduates and visiting postgraduate (JD) students from NYU Law

Evaluated as "outstanding in both preparation and delivery" by the Oxford Law Faculty

University College London, Fixed-Term Lecturer in Philosophy — Spring 2014

Developed two undergraduate philosophy courses at University College London:

Early Modern Philosophy (1st Year course with 100+ students), and

Empiricism (advanced 2nd and 3rd Year course with 30+ students)

Created syllabuses, gave lectures and seminars, and supervised three TAs (seminars and marking)

Evaluation by Prof. Paul Snowdon, late Grote Professor of Mind and Logic and Head of Department:

> Paul's "contribution to the teaching in our department was unsurpassed … it was first rate – original but also clear and suitable for undergraduates. I was especially impressed by the way he made his lectures intelligible for undergraduates, but also comprehensive and wide-ranging, covering as well as philosophy, both the science of the time and relevant cultural developments. I know from student feedback that the course was a great success."

Oxford University, St Hilda's College, Fixed-Term Lecturer and College Tutor in Law 2012 – 2013

Responsible for teaching and curriculum development of 3 courses at St Hilda's College:
Legal Philosophy, Constitutional Law, and Administrative Law

Students received a disproportionate number of 1sts, especially in my first-year course

Responsible for admissions and pastoral care of 2nd year undergraduates and taught postgraduates

Performance evaluated "top 5%" by Prof. Sarah Green (now Law Commissioner for England and Wales)

TEACHING EXPERIENCE – VISITING LECTURER

Mount Sinai School of Medicine, Prof. Daniela Schiller's 'Philosophy in Science' course — Oct 2024
Lecture on how Philosophy informs my work on 3D Vision — New York, NY

University College London, Perception Lecture Series, 2nd Year BSc in Psychology — Jan 2021
Lecture and Seminar on 'Depth Perception' for Department's lecture series — Online (Covid)

New York University, Prof. Wei Ji Ma's 'Psychological Science and Society' course — May 2020
Group discussion of my work on distance perception — Online (Covid)

Cambridge University, School of Architecture, Invited Reviewer (Critic) in Architecture — 2014 – 2017
+ occasionally The Bartlett (University College London) and Central Saint Martins — Cambridge +
Contributor to Architectural Association's *AAConversations* [Link] — London, UK

VISITING POSTGRADUATE STUDENT

CIFAR Neuroscience of Consciousness (CNC) Winter School — December 2021
Hosted by CIFAR's Brain, Mind & Consciousness program — Online (Covid)

University of Aberdeen, Northern Institute of Philosophy — Summer 2010
Invited by Prof. Crispin Wright (NYU) — Aberdeen, UK

Harvard University, Department of Philosophy — Spring 2010
Invited by Prof. Derek Parfit (Harvard) — Cambridge, MA

Cambridge University, Kings College, Centre for History and Economics — Spring + Summer 2009
Invited by Prof. Amartya Sen (Harvard) — Cambridge, UK

LEGAL EXPERIENCE

Council of Europe, Commission for Democracy Through Law ('Venice Commission') — Summer 2008
Effectiveness of constitutional safeguards in Eastern Europe — Strasbourg, FR

University of Leiden, Meijers Institute, Faculty of Law — Spring + Summer 2007
European Parliament project on sexual orientation discrimination — Leiden, NL

Research Assistant to Sir Keir Starmer KC (now Prime Minister of the UK) Spring + Summer 2003
International human rights law, death row cases in Trinidad and Tobago London, UK

TRAINING IN PHILOSOPHY

I took the following Graduate Courses in Philosophy as an MA student at New York University, cross-registered at Harvard University, with Prof. Amartya Sen (Harvard) as my supervisor:

Moral Philosophy	Ethics and Practical Reason (Parfit + Scanlon) Topics in Ethics (Parfit) Topics in Ethics (Scheffler)
Political Philosophy	Colloquium in Legal, Political, and Social Philosophy (Dworkin + Nagel) Equality and Democracy (Scanlon) Economics of Inequality & Poverty (Sen + Atkinson) Social Choice & Welfare Economics (Sen + Foster)
Philosophy of Mind	Perception, Attention and Consciousness (Block + Carmel) Philosophy of Psychology (Peacocke) Independent Study on Subjectivity (Wright)

I started a DPhil in Legal Philosophy at Oxford University supervised by Prof. Jeremy Waldron (Political Philosophy), Prof. Derek Parfit (Moral Philosophy), and Prof. Sir Tony Atkinson (Welfare Economics).

I taught **Moral and Political Philosophy** for the Oxford Law Faculty for four consecutive years, with the Oxford Law Faculty evaluating my teaching as "outstanding in both preparation and delivery".

I also taught **Legal Philosophy** for St Hilda's College, Oxford where my teaching was rated "top 5%".

During this time my focus shifted to the **Philosophy of Perception**, and the questions I encountered on Ned Block's course at NYU. I started writing my book *The Perception and Cognition of Visual Space* (2017), and I audited courses on the Philosophy of Mind at UCL by Profs. Mike Martin, Christopher Peacocke, and Paul Snowdon.

To explore these issues through a historical lens, I taught **Early Modern Philosophy** and **Empiricism** at UCL as a Teaching Fellow (Associate Lecturer) in Philosophy. This teaching continues to inform my research on both human perception and Artificial Intelligence, as evident in my paper 'Minimal Theory of 3D Vision: New Approaches to Visual Scale and Visual Shape' (2023) which draws on Descartes, British Empiricists, and Kant.

My Fellowship (Presidential Scholar) at Columbia University was a joint position in Philosophy and Neuroscience, where I am mentored by Prof. Christopher Peacocke on the Philosophy of Perception.

IS V1 A COGNITIVE MAP?

Cognitive Computational Neuroscience (CCN)
Generative Adversarial Collaboration (GAC)
[Website][Proposal]

Members: **Paul Linton** (Columbia University), **David Heeger** (New York University), **Tony Movshon** (New York University) **Lars Muckli** (University of Glasgow), **Hendrikje Nienborg** (National Eye Institute), **Paolo Papale** (Netherlands Institute for Neuroscience), **Andrew Parker** (University of Magdeburg), **Lucy Petro** (University of Glasgow), **Pieter Roelfsema** (Netherlands Institute for Neuroscience), **Bharath Talluri** (National Eye Institute), **Hadi Vafaii** (UC Berkeley), **Petra Vetter** (University of Fribourg), **Cheng Xue** (University of Chicago), **Jacob Yates** (UC Berkeley), **Li Zhaoping** (Max Planck Institute for Biological Cybernetics), **Nikolaus Kriegeskorte** (Columbia University)

CCN GAC KICK-OFF MEETING AT MIT [Recording]

	Introduction	Paul Linton (Columbia): "Is V1 a Cognitive Map?"
1.	**Against 'Cognitive Map'**	David Heeger (New York University): "Models of V1: A Brief History"
2.	**For 'Cognitive Map'**	Lars Muckli (University of Glasgow): "Multisensory and Cognitive Top-Down Contributions to V1"
3.	**Against 'Cognitive Map'**	Hendrikje Nienborg (National Eye Institute): "Minimal Contribution by Body Movements, but Effects of Spatial Attention in V1"
4.	**Against 'Cognitive Map'**	Andrew Parker (University of Magdeburg): "The Neuronal Representation of Binocular Depth in V1 is Cognitively Incoherent"
5.	**For 'Cognitive Map'**	Li Zhaoping (Max Planck Institute for Biological Cybernetics): "Peripheral V1: Saliency; Central V1: Recognition, Recurrence, and the Bottleneck"
6.	**For 'Cognitive Map'**	Paolo Papale (Netherlands Institute for Neuroscience): "Is Cognition the Dark Energy of V1?"
	Open Discussion	Speakers + Tony Movshon + Pieter Roelfsema

NEW APPROACHES TO 3D VISION

Royal Society, 1-4 Nov 2021

[Website][Recordings]

DAY ONE - SEEING BEYOND SLAM

Chair: Andrew Fitzgibbon (Microsoft)

Session One: **Neural Scene Representation**

SM Ali Eslami (DeepMind): "Neural priors, neural encoders and neural renderers" [Link]

Ida Momennejad (Microsoft Research): "Multi-scale predictive representations and human-like RL" [Link]

Session Two: **Perception-Action Loop**

Sergey Levine (UC Berkeley and Google): "Generalization in data-driven control" [Link]

Andrew Glennerster (University of Reading): "Understanding 3D vision as a policy network" [Link]

DAY TWO – ANIMALS IN ACTION

Chair: Matteo Carandini (University College London)

Session One: **Locating Prey and Rewards**

Jenny Read (Newcastle University): "Stupid stereoscopic algorithms that still work" [Link]

Aman Saleem (University College London): "Visual processing in the brain during navigation" [Link]

Session Two: **Navigation in 3D Space**

Kate Jeffery (University College London): "The cognitive map of 3D space: not as metric as we thought?" [Link]

Gily Ginosar (Weizmann Institute): "Locally ordered representation of 3D space in the entorhinal cortex" [Link]

DAY THREE - EXPERIENCING SPACE

Chair: Mar Gonzalez-Franco (Microsoft Research)

Session One: **Theories of Visual Space**

Dhanraj Vishwanath (University of St Andrews): "Tripartite encoding of visual 3D space" [Link]

Paul Linton (City, University of London): "New approaches to visual scale and visual shape" [Link]

Session Two: **Challenges for Virtual Reality**

Sarah Creem-Regehr (University of Utah): "Perception and action in virtual and augmented reality" [Link]

Douglas Lanman (Facebook Reality Labs): "Engineering challenges for realistic displays" [Link]

DAY FOUR - GRASPING THE WORLD

Chair: Jody Culham (Western University)

Session One: **One Visual Stream or Two?**

Fulvio Domini (Brown University): "A novel non-probabilistic model of 3D cue integration explains both perception and action" [Link]

Irene Sperandio (Trento): "Dissociations between perception and action in size-distance scaling" [Link]

Session Two: **3D Space and Visual Impairment**

Ione Fine (University of Washington): "Do you hear what I see? How do early blind individuals experience object motion?" [Link]

Ewa Niechwiej-Szwedo (University of Waterloo): "The role of binocular vision in the development of visuomotor control and performance of fine motor skills" [Link]

ANNOUNCEMENT OF AWARD 2025

Every 2 years, the AVA invites nominations for the David Marr medal, recognizing the achievements of an outstanding vision scientist in the early part of their research career. The award is named in memory of one of Britain's most distinguished vision researchers.

The AVA is pleased to announce that:

For his pioneering research on visual experience, particularly his psychophysical studies challenging the role of vergence (eye rotation) in size and distance perception, his theoretical work developing new theories of 3D vision and the 'perception' / 'cognition' distinction, and his recent work developing new illusions of visual experience.

The AVA has decided to award the Marr Medal for 2025 to Dr Paul Linton, NOMIS Foundation Fellow at the Italian Academy for Advanced Studies, Columbia University, and Presidential Scholar in Society and Neuroscience at the Center for Science and Society, Columbia University.

Dr Paul Linton

Dr Linton will be invited to receive the award and to give a keynote lecture on his research entitled:

"Five Illusions Challenge Our Understanding of Visual Experience"

At the AVA's Christmas Conference, December, 2025.

Our warm congratulations go to Paul as winner of the AVA Marr award in 2025.