Oliver James Hulme

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Group page: drcmr.dk/reward-and-homeostasis

Bio

I hold a Masters degree in Physiological sciences from the University of Oxford. From there I was admitted as a special status student to Harvard University, where I was cross-registered at the Massachusetts Institute of Technology, studying neuroscience, philosophy and psychology. I then pursued a PhD in Neuroimaging at University College London (UCL). My PhD thesis was on the neuroimaging of visual perception, after which I did postdoctoral research at UCL on the neuroimaging of visual attention. After a period of full-time lecturing in statistics and neuroscience at the University of British Columbia, as well as guest lecturing at Harvard and UCL, I returned to perform full-time research at the Danish Research Centre for Magnetic resonance (DRCMR). At DRCMR I run the Reward and Homeostasis group, co-lead the Methods group, and I am coordinator of the Cognitive and Computational Neuroimaging research theme (a collection of several research groups). I am currently an external fellow of the London Mathematical Laboratory, and an honorary fellow of the Max-Planck UCL Centre for Computational Psychiatry.

Research interests

I have broad interests in the physical, social, and biological sciences. My main interest is in the brain's reward system. Put simply: how does it work, and why? I explore mathematical and computational theories that constrain how it should work, and then test the predictions of these theories against behavioral and neuroimaging data. There are two strands to this agenda. The first asks, how do reward computations help shape behaviour to regulate the physiological systems of the body. The second strand draws on physics. I am interested in the constraints that ergodicity imposes on decision-making, and whether such considerations can also offer a unified explanatory account of a number of disparate decision-making phenomena.

Academic Research and Employment

2020-Present	Honorary Fellow, Max-Planck UCL Centre for Computational Psychiatry & Ageing, University College London, UK.
2019-Present	External Fellow, London Mathematical Laboratory, UK
2015-Present	Senior Researcher, Group leader of Reward & Homeostasis Group, Danish Research Centre for Magnetic Resonance, Copenhagen University Hospital Hvidovre, Denmark
2017-Present	Coordinator of the research theme Cognitive & Computational Neuroimaging, Danish Research Centre for Magnetic Resonance, Copenhagen University Hospital Hvidovre, Denmark
2011-2015	Postdoctoral researcher, Danish Research Centre for Magnetic Resonance, Copenhagen University Hospital Hvidovre, Denmark
2010-2011	Lecturer, Zoology Department & Psychology Department, University of British Columbia, Canada
2009	Visiting Scholar, Welsh Institute of Cognitive Neuroscience, Bangor University, UK
2007-2008	Wellcome Trust Postdoctoral Fellow in Cognitive Neuroscience, University College London, UK

Education

2003-2006	PhD in Neuroimaging, with Prof. S. Zeki FRS and Prof. K. Friston FRS, University College London, UK
2001-2002	Special Status Student, Harvard University and Massachusetts Institute of Technology, USA
1998-2001	M.A. Physiological Sciences, Lady Margaret Hall, University of Oxford, UK

Publication metrics

H-index: 14 Researchgate score: 29.55 Citations (Google scholar): 1083
Total peer-reviewed publications & pre-prints: 37
First author publications & pre-prints: 10
Corresponding authorships: 14
Orcid number: 0000-0003-3139-4324. Full list of publications available at https://scholar.google.dk/citations?user=fhkJIuIAAAAJ&hl=en

Hulme, OJ, Wagenmakers EJ, Damkier P, Madelung CF, Siebner HR, Helweg-Larsen J, Gronau Q, Benfield TL, Madsen KH. (2021)
A Bayesian reanalysis of the effects of hydroxychloroquine and azithromycin on viral carriage in patients with COVID-19.
PloS One. doi.org/10.1371/journal.pone.0245048

Lopez-Yepez JS, Martin J, **Hulme OJ**, Kvitsiani D. (Pre-print)
A normative account of choice history effects in mice and humans
bioRxiv 2020.07.22.216234; doi: https://doi.org/10.1101/2020.07.22.216234

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Effective immunity and second waves: a dynamic causal modelling study
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Meder D, Rabe F, Morville T, Madsen KH, Koudahl MT, Dolan RJ, Siebner HR, **Hulme OJ.** (Pre-print)
Ergodicity-breaking reveals time optimal economic behavior in humans
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The Homeostatic Logic of Reward
bioRxiv, doi.org/10.1101/242974.

Morville T, Madsen K, Siebner HR, **Hulme OJ.** (Pre-print)
Reward signaling in brainstem nuclei under glycemic flux
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Dopamine agonist treatment increases sensitivity to gamble outcomes in the hippocampus in de novo Parkinson's disease
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Faranda D, Castillo IP, **Hulme OJ**, Jezequel A, Lamb J, Sato Y, Thompson E, (2020)
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Chaos. 2020;30(5):051107. doi:10.1063/5.0008834
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Wellcome Open Research 5 (144), 144
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Hulme OJ, Morville T, Gutkin B. (2019)
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Physics of Life Reviews, Jul 19. pii: S1571-0645(19)30100-9. doi: 10.1016/j.plrev.2019.07.005
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Hulme OJ, Webb EJ, Sebald A. (2019)
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Behavioral and Brain Sciences 2019 Jan;42:e43. doi: 10.1017/S0140525X18002017
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Nature Communications. Dec 5;8(1):1942. doi: 10.1038/s41467-017-02169-w.
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Scientific Reports. Oct 31;7(1):14420. doi: 10.1038/s41598-017-14729-7.
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Neuroimage. Jul 1;134:180-191. doi: 10.1016/j.neuroimage.2016.04.019.
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Variation in the oxytocin receptor gene is associated with behavioral and neural correlates of empathic accuracy
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Hulme OJ, Friston KJ, Zeki S. (2009)
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