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## Joseph M Barnby, PhD



### SCIENTIFIC & INDUSTRY POSITIONS

2022 – present	<b>Assistant Professor</b> <i>Head of the Social Computation and Cognitive Representation Lab</i>	Royal Holloway University of London London, UK	
2023 – present	<b>Adjunct Senior Research Fellow</b>	University of Western Australia Perth, AU	
2021 – present	<b>Adjunct Senior Research Fellow</b>	Kings College London London, UK	
2021 – 2022	<b>Australian Research Council Postdoctoral Fellow</b> <i>Understanding the role of white matter tracts in social interaction &amp; cognition</i>	Queensland Brain Institute Brisbane, AU	
2017 – 2021	<b>Medical Research Council Doctoral Training Fellow</b> <i>Thesis: The Neurocognitive mechanisms of paranoia</i>	Kings College London London, UK	
2016 - 2021	<b>Research Scientist</b> <i>Science Communication, Scientific Strategy</i>	Thrive Therapeutic Software London, UK	
2016 - present	<b>Founder</b> <i>Immersive Art &amp; Science</i>	Senscapes London, UK & Australia	
2016 - 2017	<b>Wellcome Trust Funded Research Assistant</b> Social Cognition & Psychosis	University College London London, UK	
2016	<b>Assistant Psychologist</b> , Royal London Hospital, Integrated into the Emergency Psychological Medicine Team	The Royal London Hospital London, UK	
2014 - 2015	<b>Research Assistant</b> , MAPrc Neural correlates of mindfulness practice	Monash University Melbourne, AU	
2013 - 2014	<b>Associate Research Fellow</b> , Dynamic Memory and Cognition Lab	Birkbeck London, UK	



### EDUCATION

2017 – 2021	<b>PhD Cognitive Neuroscience</b> <i>Thesis: The Neurocognitive mechanisms of paranoia</i>	Kings College London London, UK
2015 - 2016	<b>MSc Clinical Mental Health</b> <i>Clinical assessment, theory, and aetiology</i>	University College London London, UK
2008 - 2011	<b>BSc (Hons) Psychology with Neuroscience (2:1)</b> <i>Cognitive psychology, molecular, cellular and systems neuroscience</i>	University of Leicester Leicester, UK



## AWARDS AND HONOURS

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2023	Member of FENS-Kavli Network of Excellence (FENS-Kavli Scholar)
2022	Early Career Award: Schizophrenia International Research Society (SIRS)
2019	BAP Junior Science Communication Award
2019	KCL Neuroscience Communication Award
2018	MRC Science Communication Award
2018	King's Experience Award – A Beautiful Mind: Art, Science, and Mental Health
2017	Team lead of winning team at HackTheBrain, Dublin 2017 (Horizon 2020)
2017	Funding awarded to attend Mind & Life ESRI Conference
2016	Voted No.1 for student innovation for “Re(Mind)” app, UCL, UK



## AWARDED/ASSOCIATED GRANTS

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2023	Wellcome Trust: Seed fund (Hypatia: Health Modelling, Made Simple; PI)
2022	Start-up funding from Royal Holloway University of London (Asst. Prof.)
2021	Australian Research Council (PostDoc Fellow)
2018	Wellcome Trust/ King's College London – Public Engagement Grant (PI)
2018	Science Gallery London & King's College London – Public Engagement Grant (PI)
2017	Horizon 2020: HackTheBrain funding for Senscapes (Team Lead)
2017	MRC Doctoral Training Partnership at King's College London (Doctoral Fellow)
2016	Wellcome Trust: Seed Fund (Research Assistant)
2016	UCL Changemakers – app development (PI)



## PUBLISHED ARTICLES AND WORK FOR A GENERAL AUDIENCE

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2023	Altered States. <i>BBC Radio 3</i>
2020	Immersive art opens a window on the mystery of other minds. <i>Aeon:Psyche</i>
2019	Psychedelics: Lost and Found Weekend (Senscapes Feature). <i>Financial Times</i>
2018	Experimental Espresso's. <i>Science Gallery, London, UK</i>
2018	King's Experience Award – A Beautiful Mind: Art, Science, and Mental Health
2017-2019	Blog written for Thrive on topics of interest in mental health ( <a href="http://www.thrive.uk.com/blogs">www.thrive.uk.com/blogs</a> )
2018	Beyond My Control: Demonstrating Epilepsy as More Than a Diagnosis. (2018) <i>The Psychologist</i>

## RECENT INVITED SCIENTIFIC TALKS

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2023	Refining Theory of Mind with Computational Approaches. <i>Cooperative University of Colombia, Colombia</i>
2023	Formalising models of social interaction to explain paranoia <i>University of Tuebingen: Max Planck Centre for Biological Cybernetics</i>
2022	Formalising Social Representation to Explain Psychiatric Symptoms. <i>UCL Max Planck Computational Psychiatry Seminar</i>



## TEACHING & SUPERVISION

2022 – present **Assistant Professor**

Royal Holloway, University of London  
London, UK

### Current Lab Members:

- Christina Dimitriadou (PhD Cand.), *Royal Holloway*
- Josefin Westh, (DClinPsy Cand.), *Royal Holloway*
- Jen Nguyen, (DClinPsy Cand.), *Royal Holloway*

### Previous (supervised and/or mentored):

- Henry Burgess, *Washington University in St. Louis*
- Anna Walbeck, *Maastricht University*
- Ines Almeida, *University of Lisbon*
- Nitay Alon, *University of Tubingen*

2017 – 2022 **Module Lecturer (Cognitive Neuroscience)**

King's College London  
London, UK

2018 – 2019 **MSc Dissertation Supervisor**

King's College London  
London, UK



## LANGUAGE/TECHNICAL SKILLS

<b>R</b>	Expert
<b>Python</b>	Competent
<b>Matlab</b>	Competent
<b>Stan</b>	Competent
<b>Markdown</b>	Competent
<b>Github/Git</b>	Competent
<b>Java</b>	Beginner
<b>Computational Modelling</b> (e.g., RL & Bayesian learning)	Expert
<b>Machine/Deep Learning</b> (e.g., Keras; Tensorflow)	Competent
<b>Network Modelling</b> (e.g. Sparse/Regularised Networks)	Competent
<b>Behavioural and Psychometric Modelling</b>	Expert



## INDUSTRY CONSULTANCY

2022	<b>Awen (UK)</b>	Analytic pipeline for R&D of VR experience
2021 - 2022	<b>Curio (AU)</b>	Scientific consulting for gov and non-gov orgs
2021	<b>iYarn (AU)</b>	Scientific Strategy Advice
2021	<b>Blue Ribbon (UK)</b>	Scientific Advice and Strategy
2020	<b>Refinitiv (UK)</b>	Mental health and the workplace
2019	<b>Record Union (SWE)</b>	Mental health/Financial strategy
2016 - 2021	<b>Thrive (UK)</b>	Scientific Strategy/Research Development
2015 - 2018	<b>InFocus Training (UK)</b>	Mental health strategy



## SELECTED PEER REVIEWED PUBLICATIONS AND PREPRINTS

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- Alon, N., Schulz, L., Dayan, P., **Barnby, J.M.** (2023). Between prudence and paranoia: Theory of Mind gone right, and wrong. *Proceedings of the First Conference on Theory of Mind in Communicating Agents, ICML 2023*
- Barnby, J. M.**, Bell, V., Deeley, Q., Mehta, M., & Moutoussis, M. (2023; In Review, *Nature Mental Health*). D2/D3 dopamine supports the precision of mental state inferences and self-relevance of joint social outcomes. *bioRxiv*, 2023-05.
- Moutoussis, M., **Barnby, J. M.**, Durant, A., Croal, M., Rutledge, R., & Mason, L. (2023; In Review, *SCAN*). The role of serotonin and of perceived social differences in inferring the motivation of others. *bioRxiv*, 2023-05.
- Barnby, J. M.**, Haslbeck, J. M., Rosen, C., & Harrow, M. (2023; In Review, *Schizophrenia Research*). Modelling the Longitudinal Dynamics of Paranoia in Psychosis: A Temporal Network Analysis Over 20 Years. Preprint: <https://doi.org/10.1101/2023.01.06.23284268>
- Barnby, J. M.**, Park, S., Baxter, T., Rosen, C., Brugger, P., & Alderson-Day, B. (2023). The Felt Presence experience: From cognition to the clinic. *The Lancet Psychiatry*. [https://doi.org/10.1016/S2215-0366\(23\)00034-2](https://doi.org/10.1016/S2215-0366(23)00034-2)
- Barnby, J. M.**, Dayan, P., & Bell, V. (2023). Formalising social representation to explain psychiatric symptoms. *Trends in Cognitive Sciences*, <https://doi.org/10.1016/j.tics.2022.12.004>
- Barnby, J. M.**, Mehta, M. A., & Moutoussis, M. (2022). The computational relationship between reinforcement learning, social inference, and paranoia. *PLOS Computational Biology*, *18*(7), e1010326.
- Barnby, J.M.**, Dean, R., Burgess, H., Kim, J., Teunisse, A.K., MacKenzie, L., Robinson, G., Dayan, P., Richards, L.J. (2022) Increased persuadability and credulity in people with corpus callosum dysgenesis. *Cortex*. <https://doi.org/10.1101/2021.12.28.21268413>
- Barnby, J.M.**, Raihani, N., Dayan, P. (2022) Knowing me, knowing you: Interpersonal similarity increases predictive accuracy and reduces attributions of harmful intent. *Cognition*, *225*, 105098.
- Hampshire, A., Trender, W., Chamberlain, S., Jolly, A., Grant, J. E., Patrick, F., ... **Barnby, J.**, Hellyer, P., & Mehta, M. A. (2021). Cognitive deficits in people who have recovered from COVID-19. *EClinicalMedicine*, *101044*. DOI: <https://doi.org/10.1101/2020.10.20.20215863>
- Waters, F., **Barnby, J.M.**, Blom, J.D. (2021) Hallucination, imagery, dreaming: Towards an integrated model of stimulus-independent perception based on Parish's classic continuum hypothesis. *Royal Society Philosophical Transactions B*. DOI:10.1098/rstb.2019.0701
- Barnby, J.M.**, Deeley, Q., Bell, V., Mehta., M.A., (2020) Dopamine manipulations modulate paranoid social inferences. *Translational Psychiatry*, *10*(214). <https://doi.org/10.1038/s41398-020-00912-4>
- Barnby, J.M.**, Bell, V., Mehta., M.A., Moutoussis, M. (2020) Reduction in social learning and increased policy uncertainty about harmful intent is associated with pre-existing paranoid beliefs: evidence from modelling a modified serial dictator game. *PLOS Computational Biology*. DOI: 10.31234/osf.io/jvx5y
- Barnby, J.M.**, Bell, V., Deeley, Q., Robinson, O., Raihani, N., Mehta, M. (2020) Paranoia, sensitisation, and social inference: findings from two large-scale, multi-round behavioural experiments. *Royal Society Open Science*, *7*(3).
- Barnby, JM** & Bell, V (2017) The Sensed Presence Questionnaire (SenPQ): Initial Psychometric Validation of a Measure of the "Sensed Presence" Experience. *PeerJ*, *5*: e3149 <https://doi.org/10.7717/peerj.3149>