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Joseph M Barnby, PhD

Cognitive scientist developing novel computational approaches to understand social interaction in biological and artificial intelligence.

SCIENTIFIC & INDUSTRY POSITIONS

2025 – present	Associate Professor/Senior Lecturer	Kings College London London, UK
2025 – present	Strategic Senior Research Fellow	Centre for AI and Machine Learning Perth, AU
2023 – present	Founder & CEO	Hypatia London, UK Perth, AU
2023 – present	Adjunct Senior Research Fellow	University of Western Australia Perth, AU
2022 – 2025	Assistant Professor	Royal Holloway University of London London, UK
2021 – 2022	PostDoc Fellow (Australian Research Council) <i>Understanding the role of white matter tracts in social interaction & cognition</i>	Queensland Brain Institute Brisbane, AU
2017 – 2021	Doctoral Training Fellow (Medical Research Council) <i>Thesis: The Neurocognitive mechanisms of paranoia</i>	Kings College London London, UK
2016 - 2021	Research Scientist <i>Science Communication, Scientific Strategy</i>	Thrive Therapeutic Software London, UK
2016 - 2025	Founder & Director <i>Immersive Art & Science</i>	Senscapes London, UK & Australia
2016 - 2017	Research Assistant (Wellcome Trust) <i>Social Cognition & Psychosis</i>	University College London London, UK
2016	Assistant Psychologist , Royal London Hospital, <i>Integrated into the Emergency Psychological Medicine Team</i>	The Royal London Hospital London, UK
2013 - 2015	Research Assistant	Monash University & Birkbeck Melbourne, AU; London, UK

EDUCATION

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

AWARDS AND HONOURS

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

2025	Strategic Research Award (Senior Fellow; AI & Machine Learning)
2024	Wellcome Neuroscience & Mental Health Grant (Co-PI)
2023	Leverhulme/British Academy Grant (Modelling Paranoia in Adolescence; Co-I)
2023	Wellcome Trust Grant (Hypatia Health; 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)

PUBLIC & GOVERNMENTAL OUTPUTS

2025	Mistrust, Trust and Disinformation (Australian Academy of Sciences report)
2023	Altered States. <i>BBC Radio 3</i>
2021-2025	World Health Organisation report(s) on COVID-19
2021	UK Parliament Select Committee report on Mental Health Services in England
2020	Immersive art opens a window on the mystery of other minds. <i>Aeon:Pyche</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 (www.thrive.uk.com/blogs)
2018	Beyond My Control: Demonstrating Epilepsy as More Than a Diagnosis. (2018) <i>The Psychologist</i>

RECENT INVITED/ORGANISED SCIENTIFIC TALKS & WORKSHOPS

2025	Computational Approaches to Social Learning, <i>RLDM 2025</i> , Co-Organiser
2025	Theory of Mind in AI. <i>AAAI 2025</i> . Co-Organiser.
2025	Self-other generalisation in health and disorder, <i>European Workshop on Cognitive Neuropsychology</i>
2025	A standard framework for social cognition. <i>University of Hamburg, DE</i>
2024	Social Contagion in Adolescence. <i>The Jacobs Foundation, University of Zurich, CH</i>
2024	The psychology of traitors and werewolves : The computational and biological mechanisms of adaptive and maladaptive social strategy. <i>The Royal Society, UK</i>

TEACHING, SUPERVISION & LAB

2022 – present **Director | Social Computation & Representation Lab**

Current SoCR Lab Members:

- Dr Gavin Cooper (PostDoc)
- Sepehr Razavi (PhD Cand.)
- Eleanor Davies (RA)

Previous (supervised and/or mentored):

- Henry Burgess, *Washington University in St. Louis*
- Christina Dimitriadou, (PhD Cand.) *Royal Holloway, University of London*
- Paul Turner (iBSC), *University College London*
- Anna Walbeck, *Maastricht University*
- Ines Almeida, *University of Lisbon*
- Nitay Alon, *Max Planck Institute of Biological Cybernetics*
- Dr Josefin Westh, (DClinPsy; completed)
- Dr Jen Nguyen, (DClinPsy; completed)

I Teach:

- Neuroscience of Decision Making
- Psychiatric Theory and Empirical Approaches
- Applied Neuroscience Methods
- Computational approaches
- Data Visualisation
- Social Neuroscience
- Open Science
- Formal Theory Development

SELECTED PUBLICATIONS AND PREPRINTS

- Kingston, J. L., Ellett, L., Burgess, H., Richards, L., & **Barnby, J. M.** (2025). Social exclusion increases paranoia and reduces self and other learning flexibility in adolescents. *PsyArXiv*
- Barnby, J. M.**, Nguyen, J., Griem, J., Wloszek, M., Burgess, H., Richards, L., ... & Montague, P.R., Dayan, P., Nolte, T., Fonagy, P. (2025). Self-other generalisation shapes social interaction and is disrupted in borderline personality disorder. *eLife*, 14.
- Arribas, M., **Barnby, J. M.**, Patel, R., McCutcheon, R. A., Kornblum, D., Shetty, H., ... & Oliver, D. (2025). Longitudinal evolution of the transdiagnostic prodrome to severe mental disorders: a dynamic temporal network analysis informed by natural language processing and electronic health records. *Molecular Psychiatry*, 1-12.
- Rhoads, S. A., Gu, X., & **Barnby, J. M.** (2024). Advancing computational psychiatry through a social lens. *Nature Mental Health*, 1-3.
- Alon, N., **Barnby, J. M.**, Sarkardi, S., Schulz, L., Rosenschein, J. S., & Dayan, P. (2024; In Review, *Journal Of Artificial Intelligence Research*). Detecting and Detering Manipulation in a Cognitive Hierarchy. *arXiv preprint arXiv:2405.01870*.
- Barnby, J. M.**, Bell, V., Deeley, Q., Mehta, M., & Moutoussis, M. (2024). D2/D3 dopamine supports the precision of mental state inferences and self-relevance of joint social outcomes. *Nature Mental Health*.
- Barnby, J. M.**, Bellucci, G., Alon, N., Schilbach, L., Frith, C., Bell, V. (2024; In Review, *Psychonomic Bulletin and Review*). A Standard Framework for Social Cognition: Interoperable algorithms for inference and representation, *PsyArXiv*
- Alon, N., Schulz, L., Bell, V., Moutoussis, M., Dayan, P., **Barnby, J.M.** (2024). (Mal)adaptive mentalising in the cognitive hierarchy, and the link to paranoia. *Computational Psychiatry*.
- Barnby, J. M.**, Haslbeck, J. M., Rosen, C., & Harrow, M. (2024). Modelling the Longitudinal Dynamics of Paranoia in Psychosis: A Temporal Network Analysis Over 20 Years. *Schizophrenia Research*. 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/10.1016/2021.12.28.21268413>
- 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/10.1016/2020.10.20.20215863>