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Joseph M Barnby, PhD

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

SCIENTIFIC & INDUSTRY POSITIONS

2025 – present	Associate Professor & AI+ Senior Fellow	Kings College London London, UK
2026 – present	Senior Research Fellow	University of Western Australia Perth, AU
2024 – present	Founder	Hypatia London, UK Perth, AU
2025 – present	Strategic Senior Research Fellow	Centre for AI and Machine Learning Perth, AU
2022 – 2025	Assistant Professor	Royal Holloway University of London London, UK
2021 – 2022	Post-Doctoral Fellow (ARC) <i>Computational Cognitive Science</i>	Queensland Brain Institute & MPG Brisbane, AU; Tuebingen, DE
2017 – 2021	Doctoral Training Fellow (MRC) <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 <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, Integrated into the Emergency Psychological Medicine Team	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

2026	Incite Award (For Hypatia; WAITTA; Australia)
2026	AI+ Senior Fellow (King's College London)
2025	Strategic Senior Fellow (Centre for AI and Machine Learning)
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

2026	AI+ Senior Fellowship [KCL] (£100K; PI)
2026	Hypatia Grant Investment [Wellcome Trust] (£1.5M; PI)
2025	Strategic Research Award (\$750K AUD; Senior Fellow; Centre for AI & ML)
2024	Wellcome Neuroscience & Mental Health Grant (£1.5M; Co-PI)
2023	Leverhulme/British Academy Grant (£10K Modelling Paranoia in Adolescence; Co-I)
2023	Hypatia Pre-Seed Investment [Wellcome Trust] (£125K; PI)
2022	Start-up funding from Royal Holloway University of London (£10K; Asst. Prof.)
2021	Australian Research Council (PostDoc Fellow)
2018	Wellcome Trust/ King's College London – Public Engagement Grant (£5K; PI)
2018	Science Gallery London – Public Engagement Grant (£5K; 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: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

RECENT INVITED/ORGANISED SCIENTIFIC TALKS & WORKSHOPS

2026	Theory of Mind in AI. AAAI 2026. Co-Organiser.
2025	Computational Approaches to Social Learning, <i>RLDM 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 **PI | Social Computation & Representation Lab & Hypatia**

Current SoCR Lab or HYPATIA Members:

Dr Andrés Miniguano-Trujillo (PostDoc; SoCRLab)
Dr Gavin Cooper (PostDoc; SoCRLab + Hypatia)
Sepehr Razavi (PhD Cand.; SoCRLab)
Francis Follis (Software Engineer; Hypatia)
Brennan Paezold (UXUI Engineer; Hypatia)
Katherina Wellstein (PostDoc; SoCRLab)

Previous (supervised and/or mentored):

Eleanor Davies, *Royal Holloway, University of London*
Maite Arribas, *Kings College London*
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

- Alon, N., **Barnby, J.M.**, Mirsky, R., Sarkadi, S. (2026; Forthcoming) Theory of Mind in Natural and Artificial Intelligence (1st Ed.). *Springer Nature*.
- Barnby, J.M.**, Dean, R., Burgess, H., Dayan, P., Richards, L.J. (2026) Corpus Callosum Dysgenesis Impairs Metacognition: Evidence from Multi-Modality and Multi-Cohort Replications. *Nature Communications*.
- Kingston, J. L., Ellett, L., Burgess, H., Richards, L., & **Barnby, J. M.** (2026). Social exclusion increases paranoia and reduces self and other learning flexibility in adolescents. *Clinical Psychological Science*.
- Alon, N., **Barnby, J. M.**, Sarkadi, S., Schulz, L., Rosenschein, J. S., & Dayan, P. (2026). X-iPOMDP : Mitigating Deception in the Cognitive Hierarchy with Off-Policy Counterfactual Anomaly Detection. *Journal of Artificial Intelligence Research*.
- 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.
- 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*.
- 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.**, 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>