Benjamin Oliver Barnett

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consciousness, perception, numerical cognition, theory of mind

Education

University College London — London, UK
PhD: Characterising the Neural Correlates of Perceptual Experience — *Sep. 2020 – Oct. 2024*

University of Sussex — Brighton, UK
MSc in Intelligent and Adaptive Systems, Distinction — *Sep. 2017 – Sep. 2018*

University of Sussex — Brighton, UK
BSc in Neuroscience with Cognitive Science, First Class — *Sep. 2014 – May 2017*

Employment

Post Doctoral Research Fellow — September 2025 – September 2027
Birkbeck, University of London — *London, UK*

- Conducting research using fMRI and computational modelling to explore the influence of social context on subjective perception

Post Doctoral Research Fellow — October 2024 – August 2025
University College London — *London, UK*

- Research Fellow involved in Empirical Tests of Higher-Order Theories of Consciousness (ETHOS) adversarial collaboration
- Conducting MEG, fMRI, and computational modelling research

Research Associate and Lab Manager — September 2018 – August 31st 2020
New York University — *New York, NY*

- Conducted research using fMRI and online experiments
- Developed online studies for PhD students and post-docs on internal javascript platform
- Automated various lab administrative duties, including NIH data submission processes

Junior Research Associate — July. 2016 – Sep 2016
Sackler Centre for Consciousness Science — *Brighton, UK*

- Devising, performing, and presenting experiments using virtual reality
- Participated in public workshops where methods and theory were demonstrated and explained to members of the public

Publications

- **Barnett, B.**, Mazor, M., Cabbai, G., Dijkstra, N. (2025) Vivid Imagery is Reported Faster than Weak Imagery. *PsyArxiv*
- **Barnett, B.**, Fleming, S. (2025) Distinct neural representations of perceptual and numerical absence in the human brain. *PsyArxiv*
- **Barnett, B.**, Fleming, S. (2024) Symbolic and non-symbolic representations of numerical zero. *Current Biology*
- **Barnett, B.**, Andersen, L., Fleming, S., Dijkstra, N.(2024) Identifying content-invariant neural correlates of perceptual visibility. *PNAS Nexus.*
- **Barnett, B.O.**, Brooks, J.A., Freeman, J.B. (2021) Stereotypes bias face perception via orbitofrontal-fusiform cortical interaction. *Social Cognitive and Affective Neuroscience.*

Popular Science Publications

- **Barnett, B.**, (2024) Why Nothing Matters. *Aeon*

Presentations and Posters

* **Barnett, B.**, Fleming, S. Symbolic and Non-Symbolic Representations of Numerical Zero in the Human Brain *European Conference for Visual Perception, Aberdeen, 2024*
* **Barnett, B.**, Fleming, S. Model-Based Planning as a Function of Consciousness. *Association for the Scientific Study of Consciousness, Tokyo, 2024*
* **Barnett, B.**, Fleming, S. Perceptual Vividness and Neural Magnitude Codes *Croation Consciousness and Computation Conference, Zagreb, 2024*
* **Barnett, B.**, Fleming, S. Symbolic and Non-Symbolic Representations of Absence. *Association for the Scientific Study of Consciousness Conference, New York, 2023*
* **Barnett, B.**, Andersen, L., Fleming, S., Dijkstra, N. Content-invariant neural correlates of phenomenal magnitude. *From Sensation to Awareness, Sussex University, 2023*
* **Barnett, B.**, Andersen, L., Fleming, S., Dijkstra, N. Content-invariant neural correlates of phenomenal magnitude. *Association for the Scientific Study of Consciousness Conference, Amsterdam, 2022*
* **Barnett, B.**, Andersen, L., Fleming, S., Dijkstra, N. Content-invariant neural correlates of phenomenal magnitude. *Computational Properties of the Prefrontal Cortex, Oxford, 2022*
* **Barnett, B.**, Andersen, L., Fleming, S., Dijkstra, N. Isolating Abstract Awareness States: Probing the Neural Encoding of Levels of Subjective Experience Across Stimuli. *Association for the Scientific Study of Consciousness Conference, Tel Aviv, 2021*
* **Barnett, B.**, Suzuki, K. The Impact of Embodiment on Intentional Binding: A Virtual Reality Study. *University of Sussex Junior Research Associate Poster Conference, 2016*

Teaching and Supervision

Teaching Autumn Term: 2022 - Present

* Introduction to Statistical Methods using R *2022 & 2023 Undergraduate Module*
* Introduction to MEG: how and why do we use it? *2024 Undergraduate Lecture*

Supervision 2021-Present

* MSc Thesis: "The Effect of Zero During Symbolic and Non-Symbolic Numerical Comparison", 2024-2025
* MSc Thesis: "Developing social cognition paradigms in Optically-Pumped MEG", 2022-2023
* Mentor on the Underrepresented Student Mentor Programme, UCL Institute of Neurology, 2021-2022

Marking 2023

* MSc theses
* 'Brain and Behaviour' End of Module Exam Essays

Awards and Scholarships

* Guarantors of BRAIN Travel Grant *University College London*
* UCL-PSL Doctoral Research Internship Award, *University College London*
* Pegge Scholarship for Intelligent and Adaptive Systems MSc, *University of Sussex*
* Junior Research Associate grant to perform summer research, *University of Sussex*

Additional Training and Experience

* Performed peer-review for: *Behavior Research Methods*
* Invited Public Engagement Talk: How Neuroscience Tackles the Problem of Consciousness. *Mind the Brain Conference, Institute of Cognitive Neuroscience, University College London*
* 5 Week internship with Catherine Tallon-Baudry and the Subjectivity, Brain, and Viscera Group *École Normale Supérieure - Paris Sciences et Lettres University, Paris*
* Chaired sessions for the M/EEG SPM Course, *Wellcome Center for Human Neuroimaging, University College London*
* Organised and Chaired Methods for Dummies, *Wellcome Center for Human Neuroimaging, University College London*
* Summer School in Consciousness and Metacognition, *University College London and Paris Sciences et Lettres University*
* Statistics, Data analysis, and Modelling (Graduate Level), *University College London*
* Cognitive Computational Modelling (Graduate Level), *New York University*
* Diffusion Tensor Imaging Workshop, *New York University*
* Bayesian Statistics: Techniques and Models, *UC Santa Cruz*
* Bayesian Statistics: From Concept to Data Analysis, *UC Santa Cruz*

Technical Skills

Methods: MEG, fMRI, OP-MEG, RSA, Decoding, Psychophysiological Interactions, Feature Selection, Univariate fMRI analy
Naive Bayes Classification, Bayesian Modelling, DNNs, RNNs, Sentiment Analysis, Linear and Logistic Regression,
Virtual and Substitutional Reality, Threshold-Free Cluster Enhancement,

Languages: MATLAB, Python, R, JavaScript, HTML/CSS, bash

Software: FieldTrip, pyMVPA, fMRIprep, AFNI, FSL, SAS, SPSS, Tensorflow, Git, PyCharm, VS Code, Sublime,
Jupyter, Jekyll, ssh, scp