

# Benjamin Oliver Barnett

[benjy.barnett.20@ucl.ac.uk](mailto:benjy.barnett.20@ucl.ac.uk) | [Personal Website](#) |

consciousness, perception, numerical cognition, theory of mind

## EDUCATION

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### 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

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### 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

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- **Barnett, B.**, Mazor, M., Cabbai, G., Dijkstra, N. (2026) Vivid Imagery is Reported Faster than Weak Imagery. *Neuroscience of Consciousness*, Volume 2026, Issue 1, niaf054
- **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*, Volume 34, Issue 16, p3804-3811.e4
- **Barnett, B.**, Andersen, L., Fleming, S., Dijkstra, N. (2024) Identifying content-invariant neural correlates of perceptual visibility. *PNAS Nexus*, Volume 3, Issue 2, pgae061
- **Barnett, B.O.**, Brooks, J.A., Freeman, J.B. (2021) Stereotypes bias face perception via orbitofrontal-fusiform cortical interaction. *Social Cognitive and Affective Neuroscience*, Volume 16, Issue 3, Pages 302–314,

## POPULAR SCIENCE PUBLICATIONS

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

## PRESENTATIONS AND POSTERS

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- \* **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 *Croatian 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

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### 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

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- \* 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

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- \* Performed peer-review for: *Behavior Research Methods, eLife*
- \* 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

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**Methods:** MEG, fMRI, OP-MEG, RSA, Decoding, Psychophysiological Interactions, Feature Selection, Univariate fMRI analysis, 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