

Forensic and Neurodevelopmental Sciences
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JAN FREYBERG

EDUCATION AND EMPLOYMENT

Research Associate, 2016 – present

Forensic and Neurodevelopmental Sciences, King's College London

Effects of cannabinoids on resting-state fMRI, electrophysiology, sensory response and neurotransmitter levels in autism.

Research Associate, Autism Research Centre, 2015 – 2016

Autism Research Centre, University of Cambridge

Electrophysiological Signatures of Excitation and Inhibition and Face Perception in Autism

PhD in Psychiatry 2012 - 2015

University of Cambridge (Supervisors: Simon Baron-Cohen, Caroline Robertson)

Dissertation: *Psychophysics of Excitation and Inhibition in Autism*

B.A., Natural Sciences, University of Cambridge, 2009 - 2012

Class I

Year I: *Mathematics, Cell Biology, Physiology, Chemistry.* Class I

Year II: *Neurobiology, Physiology, Experimental Psychology.* Class I

Year III: *Control of Action, Central Mechanisms of Sensation & Behaviour, Vision, Atypical Psychology, Developmental Psychology.* Class I

Dissertation: *Spatial Exogenous Attention in Autism.*

European Baccalaureate, 2008

92.2% (top of school year), European School of Frankfurt, Germany.

SKILLS Programming psychological & neuroimaging experiments

Python (psychopy, pygaze), MATLAB (psychtoolbox, proprietary and open-source eye tracking software), JavaScript (jpsych)

Data analysis, statistical testing & computational modelling

MATLAB (modelling neural networks, statistics), R (parametric and non-parametric analysis), Python (computational modelling, machine learning using sklearn and tensorflow), SPSS and JASP (frequentist and Bayesian statistics)

Neuroimaging acquisition & analysis

EEG acquisition (BioSemi & Acticap systems), EEG Analysis (fieldtrip in MATLAB, mne in python), MRI acquisition (structural, functional and spectroscopy), MRI analysis (FSL, FreeSurfer, SPM, nipy)

Psychometric and diagnostic tools

WASI-II, ADOS-2, ADI-R (research reliability)

AWARDS PhD Studentship, *Medical Research Council*, 2012
Best Student Poster Award, *Vision Sciences Symposium*, 2015
Best Presentation, *EBI-Sanger-Cambridge PhD Symposium*, 2015
College Scholar, *Churchill College, Cambridge*, 2010 – 2012

PUBLICATIONS *Journal Articles*

Freyberg J, Robertson CE, Baron-Cohen S. *Typical Magnitude and Spatial Extent of Crowding in Autism.*

Journal of Vision. 16 (5): 17

Freyberg J, Robertson CE, Baron-Cohen S. *Reduced perceptual exclusivity during object and grating rivalry in autism*

Journal of Vision. 15 (13): 11

Robertson CE, Kravitz D, **Freyberg J**, Baron-Cohen S, Baker CI. 2013. *Slower Rate of Binocular Rivalry in Autism.*

The Journal of Neuroscience. 33 (43): 16983-16991

Robertson CE, Kravitz D, **Freyberg J**, Baron-Cohen S, Baker CI. 2013. *Tunnel Vision: Sharper Gradient of Spatial Attention in Autism.*

The Journal of Neuroscience. 33 (16): 6776-6781

In preparation: *The effect of adaptation on binocular rivalry in autism; Electrophysiological Signatures of Face Processing and Autistic Traits*

Conference Presentations

Freyberg J, Robertson CE, Baron-Cohen S. 2015. *A novel paradigm to study the effect of selective adaptation of different levels of the visual hierarchy on binocular rivalry.*

Society for Neuroscience; Talk (Accepted, could not attend)

Freyberg J, Robertson CE, Baron-Cohen S. 2015. *Atypical Binocular Rivalry Dynamics of Simple and Complex Stimuli in Autism*

Vision Sciences Symposium; Poster

Freyberg J, Robertson CE, Baron-Cohen S. 2015. *Atypical Binocular Rivalry Dynamics of Simple and Complex Stimuli in Autism.*

International Meeting for Autism Research; Poster

Freyberg J, Robertson CE, Kravitz D, Baker CI, Baron-Cohen S. 2012. *Dynamics of Binocular Rivalry in Autism.*

Society for Neuroscience Annual Meeting; Poster

TEACHING University of Cambridge, 2012 – 2015

Supervised a visiting B.Sc. student on a research placement. Provided training in psychophysical techniques (programming and conducting experiments), EEG techniques, and psychometric tools.

Employed by college to give weekly supervisions (small-group teaching) to Second- and Third- Year Natural Sciences students, group size up to 5. Courses: *Atypical Psychology, Experimental Psychology (Sensory Psychology, Developmental Psychology, Higher Cognition, Learning, Memory, Motivation), Statistics*

SCIENCE Department of Psychiatry News Team, 2013 – 2015

OUTREACH Writing regular science communication articles on research and events conducted in the Psychiatry Department for publication on the departmental website

Code Club Volunteer, 2014 – 2015

St. Alban's Primary School, Cambridge. Teaching simple programming skills and languages to primary school children, including *Scratch* and *Python*

Science and Policy Content Producer, 2015

Cambridge University Science and Policy Exchange (CUSPE). Producing a weekly radio show featuring interviews with scientists and policy makers about the process of integrating evidence into science.

WORK & VOLUNTARY EXPERIENCE Support Volunteer, Association for Children and Young Adults with Developmental Disabilities, Rabat, Morocco. June – August 2010

Supported children with PDD, Down's Syndrome, and Cerebral Palsy in day-to-day activities and during class work.

Support for children with Autism Spectrum Conditions, November 2009 – present

Cambridge Student Community Action. Worked with young adults with classic autism in one-on-one sessions weekly for 5 years.

Healthcare Volunteer, Ciudadela Sedeges Orphanage, Cochabamba, Bolivia, May – September 2009

Supported orphans and street children in government orphanage

REVIEWING & EDITING Guest Editor

Molecular Autism, publications on Excitation / Inhibition imbalance

Ad-hoc Reviewer

Molecular Autism, Autism Research

COMMITTEES Graduate Student Representative, Psychiatry, 2012 – 2015

Providing support for the academic welfare of graduate students within the department and organising research talks.

Department of Psychiatry, University of Cambridge

Academic Officer, Graduate Student Union, 2013 – 2014

Organised the annual research conference within the college; organised weekly talks by junior fellows and graduate students.

Churchill College, University of Cambridge

Treasurer, Undergraduate Student Union, 2011 – 2012

Churchill College, University of Cambridge

OTHER Project Management

ACTIVITIES

Communications & Marketing Manager, *Education Partnerships Africa*. 2014 - 2015

A student-led charity investing in educational materials in rural schools in Africa

Netball Team Captain

Churchill College, 2012 – 2013

Theatre Production

Production team leadership for plays at the ADC Theatre (Cambridge), the Corpus Playrooms (Cambridge), and the Wolfson Theatre (Cambridge)