# Kirstie Whitaker

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| **Address** | Brain Mapping Unit, | **Phone** | +44 7583 53 53 07 |
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| | Cambridge, CB2 3EB, UK | **Website** | www.kirstiewhitaker.com |
| **Nationality** | British | **Twitter** | @kirstie_j |

## Personal Profile

Post-doctoral research associate studying child and adolescent brain development. Research questions include how change in an individual's brain predicts their risk of mental health disorders and neural markers of individual differences in cognitive skills or psychiatric diagnoses.

Data is collected using structural and functional magnetic resonance imaging (MRI). Analyses are conducted in Python, Freesurfer and FSL. Passionate about open science and open data, particularly ensuring all publication figures and tables are reproducibly created. An advocate for the promotion of traditionally under-represented groups (women, LGBTQ, people of colour and people with disabilities) in STEMM.

## Research and Education

**Oct 2012 - present**

**Brain Mapping Unit, Department of Psychiatry, University of Cambridge**
**Postdoctoral Fellow/Research associate**

**UCHANGE**: Understanding and Characterising Healthy Adolescent-to-Adult Neurodevelopmental Growth Effects

- Part of the Neuroscience in Psychiatry Network, a Wellcome Trust funded, multi-site collaborative project between the University of Cambridge and University College London.
- Found in two independent cohorts age related intra-cortical myelination increases and cortical thickness decreases during adolescence, along with gene expression patterns related to developmental change. Network analyses showed the hubs of the structural brain connectome change most and that genes associated with a risk of Schizophrenia are preferentially expressed in these regions (Whitaker*, Vértes* et al., Under review).
- Ensured all members of the MRI analysis team were able to integrate analyses across different statistical methods. Designed, managed and documented pre-processing and quality control procedures for longitudinal multi-modal structural MRI scans from 300 participants (14 to 24 years). Prepared data for release to wider community.
- Supported MRI data acquisition plan by quantifying variability in diffusion tensor imaging measures of white matter microstructure across three MRI scanner locations in pilot study of 6 adult participants.

**MR-IMPACT**: MRI arm of the Improving Mood with Psychoanalytic and Cognitive Therapies clinical trial

- Found differences in developmental trajectories in brain structure and function between adolescents currently diagnosed with major depressive disorder and healthy controls (Chuang et al., 2016; Hagan et al., 2015; Holt et al., 2015).
- Showed deviation from prescribing guidelines of SSRIs to adolescents with major depressive disorder based on self-report of antisocial and self-harm practises, irrespective of symptom severity (Cousins et al., 2016).
- Mentored skills in experimental and statistical design of MRI studies and practical implementation of analysis code for doctoral and masters students and visiting clinical fellows.

**Technical skills**: Cortical thickness analyses and quantitative structural imaging using multi-parametric mapping in Freesurfer, diffusion tensor imaging in FSL, NiPy and DiPy, graph theoretical approaches in NetworkX and statistical analyses in Python's scipy, numpy and statsmodels packages. Data visualisation in Matplotlib, Seaborn and Pysurfer. Code shared openly on GitHub. Database design and management in RedCap.

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| **Aug 2007 -** | **Helen Wills Neuroscience Institute, University of California at Berkeley** |
| **Sep 2012** | **Doctor of Philosophy in Neuroscience** |

Thesis: *Individual differences in white matter integrity: Linking brain structure to cognition in children and adults.*

**NORA**: Neurodevelopment of Reasoning Ability
- Found behavioural and functional development of analogical reasoning ability between age 6 and 18 (Whitaker et al., Under review).
- Showed relationship between cognitive processing speed and reasoning is mediated by white matter integrity between ages 6 and 18 (Ferrer*, Whitaker* et al., 2013).
- Worked as part of multi-site interdisciplinary team to progress understanding of neural underpinnings of cognitive development across childhood and adolescence using longitudinal and multi-modal behavioural and neuroimaging analyses (Wendelken et al. 2011, 2015).
- Developed custom analysis pipelines for structural and functional longitudinal MRI analyses, along with skills in experimental and statistical design of multi-modal MRI studies. Shared code within the research group and Neuroscience institute.

**Collaborations**
- Showed that grapheme-colour synesthetes have more diverse white matter connectivity and better visual imagery than control participants, and provided supportive evidence for a spectrum of brain structural biomarkers for synesthetic experience (Whitaker et al., 2014).
- Demonstrated white matter plasticity as a result of real world reasoning training in young adults (Mackey et al., 2012).

**Technical skills**: Experimental design for longitudinal diffusion tensor imaging and functional MRI analyses in FSL. Custom analysis scripts written in bash and VisualBasic. Database design management in Microsoft Access.

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| **Sept 2004 -** | **Department of Physics, University of British Columbia** |
| **Aug 2007** | **Master of Science in Medical Physics** |

Thesis: *Quantifying development: A novel analysis technique investigating myelination of the corpus callosum in preadolescents.*

- Linked quantitative measure myelin to intelligence in children and developed new analysis technique to minimise statistical noise in the quantification of the myelin water fraction (Whitaker et al., 2008).

**Technical skills**: Coursework in physics of MRI, data analysis in Matlab.

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| **Sept 2001 -** | **Department of Physics, University of Bristol** |
| **May 2004** | **Bachelor of Science in Physics** |

Dissertation: *Do information effects cause cancer?*
1st class honours.

# Publications

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| **In Press** | **Whitaker, K. J.\***, Vendetti, M. S.*, Wendelken, C. & Bunge, S. A. (In Press). Neuroscientific Insights into the Development of Analogical Reasoning. *Developmental Science* |

- Wrote and revised paper (with MV), interpreted findings (with MV, CW and SB); preprocessed, designed and conducted functional MRI and behavioural analyses; wrote code to ensure all figures are created reproducibly from original data; publicly shared MRI statistical maps on Neurovault; collected MRI data from approx 100 children aged 6 to 18 years; managed longitudinal behavioural and MRI data for research team.

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| **2016** | Vértes, P. E., Rittman, T., **Whitaker, K. J.**, Romero-Garcia, R., Váša, F., Kitzbichler, M. G., Wagstyl, K., Fonagy, P., Dolan, R. J., Jones, P. B., Goodyer, I. M., NSPN Consortium & Bullmore, E. T. (2016, October). Gene transcription profiles associated with inter-modular hubs and connection distance in human functional magnetic resonance imaging networks. *Philosophical transactions of the Royal Society of London. Series B, Biological sciences, 371*(1705), 20150362. doi:10.1098/rstb.2015.0362 |

- Pre-processed and quality controlled structural MRI; managed MRI data for research team.

**Whitaker, K. J.\***, Vértes, P. E.\*, Romero-Garcia, R., Váša, F., Moutoussis, M., Prabhu, G., Weiskopf, N., Callaghan, M. F., Wagstyl, K., Rittman, T., Tait, R., Ooi, C., Suckling, J., Inkster, B., Fonagy, P., Dolan, R. J., Jones, P. B., Goodyer, I. M., NSPN Consortium & Bullmore, E. T. (2016). Adolescence is associated with transcriptionally patterned consolidation of the hubs of the human brain connectome. *Proceedings of the National Academy of Sciences.* doi:10.1073/PNAS.1601745113
- Wrote and revised paper (with PV and EB); interpreted findings (with PV, EB); pre-processed, quality controlled, designed and conducted structural MRI and network analyses; wrote code to ensure all figures and tables are created reproducibly from original data; publicly shared data and analysis code; managed MRI data for research team.

Cousins, L., **Whitaker, K. J.**, Widmer, B., Midgley, N., Byford, S., Dubicka, B., Kelvin, R., Reynolds, S., Roberts, C., Holland, F., Barrett, B., Senior, R., Wilkinson, P., Target, M., Fonagy, P. & Goodyer, M. I. (2016). Clinical characteristics associated with the prescribing of ssri medication in adolescents with major unipolar depression. *European Child & Adolescent Psychiatry*, 1–9. doi:10.1007/s00787-016-0849-y
- Revised paper (with LC); interpreted findings (with LC, IG); advised on design of statistical analyses and methods reporting.

Wagstyl, K., Ronan, L., **Whitaker, K. J.**, Goodyer, I. M., Roberts, N., Crow, T. J. & Fletcher, P. C. (2016, April). Multiple markers of cortical morphology reveal evidence of supragranular thinning in schizophrenia. *Translational psychiatry*, *6*(4), e780. doi:10.1038/tp.2016.43
- Advised on design of MRI analyses; contributed code to reproducibly generate statistical images of the cortical surface.

Chuang, J.-Y., **Whitaker, K. J.**, Murray, G. K., Elliott, R., Hagan, C. C., Graham, J. M., Ooi, C., Tait, R., Holt, R. J., van Nieuwenhuizen, A. O., Reynolds, S., Wilkinson, P. O., Bullmore, E. T., Lennox, B. R., Sahakian, B. J., Goodyer, I. & Suckling, J. (2016, January). Aberrant brain responses to emotionally valent words is normalised after cognitive behavioural therapy in female depressed adolescents. *Journal of Affective Disorders, 189*, 54–61. doi:10.1016/j.jad.2015.09.008
- Advised on statistical design and interpretation of longitudinal MRI analyses (with JC); contributed to data management of study (with CH, JG, RH, CO, and RT).

**2015** Holt, R. J., Graham, J., **Whitaker, K. J.**, Hagan, C. C., Ooi, C., Wilkinson, P., van Nieuwenhuizen, A. O., Lennox, B., Sahakian, B., Goodyer, I. M., Bullmore, E. & Suckling, J. (2015). Functional MRI of emotional memory in adolescent depression. *Developmental Cognitive Neuroscience, 19*, 31–41. doi:10.1016/j.dcn.2015.12.013
- Wrote and revised paper (with RH and JG), interpreted findings (with RH and JG), pre-processed, designed and conducted functional MRI analyses (with JG), wrote code to ensure all figures are created reproducibly from original data; publicly shared MRI statistical maps on Neurovault; contributed to data management of study (with CH, JG, RH, CO, and RT).

Hagan, C. C., Graham, J. M. E., Tait, R., Widmer, B., van Nieuwenhuizen, A. O., Ooi, C., **Whitaker, K. J.**, Simas, T., Bullmore, E. T., Lennox, B. R., Sahakian, B. J., Goodyer, I. M. & Suckling, J. (2015). Adolescents with current major depressive disorder show dissimilar patterns of age-related differences in ACC and thalamus. *NeuroImage Clinical, 7*, 391–399. doi:10.1016/j.nicl.2014.12.019
- Advised on design and interpretation of structural MRI analyses (with CH); contributed to data management of study (with CH, JG, RH, CO, and RT).

Wendelken, C., Ferrer, E., **Whitaker, K. J.** & Bunge, S. A. (2015, March). Fronto-Parietal Network Reconfiguration Supports the Development of Reasoning Ability. *Cerebral cortex*, bhv050–. doi:10.1093/cercor/bhv050
- Critically appraised manuscript; interpreted findings (with CW, EF and SB); collected MRI data from approx 100 children aged 6 to 18 years; managed longitudinal behavioural and MRI data for research team.

**2014** **Whitaker, K. J.**, Kang, X., Herron, T. J., Woods, D. L., Robertson, L. C. & Alvarez, B. D. (2014, April). White matter microstructure throughout the brain correlates with visual imagery in grapheme-color synesthesia. *NeuroImage, 90*, 52–9. doi:10.1016/j.neuroimage.2013.12.054
- Set up independent collaboration; wrote and revised manuscript (with BA); interpreted findings (with BA); pre-processed, quality controlled, designed and conducted diffusion MRI analyses.

Menzies, L., Goddings, A.-l., **Whitaker, K. J.**, Blakemore, S.-J. & Viner, R. M. (2014, February). The effects of puberty on white matter development in boys. *Developmental Cognitive Neuroscience*, *11*, 1–13. doi:10.1016/j.dcn.2014.10.002
  - Set up independent collaboration; critically appraised manuscript; interpreted findings (with LM, ALG); advised on pre-processing and diffusion MRI analyses.

**2013** Ferrer, E.*, **Whitaker, K. J.***, Steele, J. S., Green, C. T., Wendelken, C. & Bunge, S. A. (2013, November). White matter maturation supports the development of reasoning ability through its influence on processing speed. *Developmental science*, *16*(6), 941–51. doi:10.1111/desc.12088
  - Wrote and revised manuscript (with EF, JS and SB); interpreted findings (with EF, JS, SB); pre-processed, quality controlled, designed and conducted diffusion MRI analyses; collected MRI data from approx 100 children aged 6 to 18 years; managed behavioural and MRI data for research team.

**2012** Mackey, A. P., **Whitaker, K. J.** & Bunge, S. A. (2012, January). Experience-dependent plasticity in white matter microstructure: reasoning training alters structural connectivity. *Frontiers in neuroanatomy*, *6*(August), 32. doi:10.3389/fnana.2012.00032
  - Critically appraised manuscript; interpreted findings (with CW, EO, EF and SB); collected MRI data from approx 100 children aged 6 to 18 years; managed longitudinal behavioural and MRI data for research team.

Bunge, S. A. & **Whitaker, K. J.** (2012, September). Brain Imaging: Your Brain Scan Doesn't Lie About Your Age. *Current biology*, *22*(18), R800–1. doi:10.1016/j.cub.2012.07.032
  - Wrote invited commentary on Brown et al. (2012) (with SB).

**2011** Wendelken, C., O'Hare, E. D., **Whitaker, K. J.**, Ferrer, E. & Bunge, S. A. (2011, November). Increased Functional Selectivity over Development in Rostrolateral Prefrontal Cortex. *Journal of Neuroscience*, *31*(47), 17260–17268. doi:10.1523/JNEUROSCI.1193-10.2011
  - Critically appraised manuscript; interpreted findings (with AM and SB); designed and wrote analysis code that pre-processed, quality controlled, and conducted diffusion MRI analyses (implemented by AM).

**2010** Bunge, S. A., Mackey, A. P. & **Whitaker, K. J.** (2010). Brain changes underlying the development of cognitive control and reasoning. In M. Gazzaniga (Ed.), *The cognitive neurosciences* (4th). MIT Press
  - Wrote book chapter (with SB and AM).

**2008** **Whitaker, K. J.**, Kolind, S. H., MacKay, A. L. & Clark, C. M. (2008, December). Quantifying development: Investigating highly myelinated voxels in preadolescent corpus callosum. *NeuroImage*, *43*(4), 731–5. doi:10.1016/j.neuroimage.2008.07.038
  - Wrote and revised manuscript (with SK, AM and CC); interpreted findings (with SK, AM, CC); designed and conducted myelin water fraction MRI analyses.

## Presentations

*Structural brain development during adolescence and its relation to psychiatric disorders.*
  University of Edinburgh Department of Psychiatry Special Seminar Series, 2016.
  Slides doi 10.6084/m9.figshare.3843405.v2

*Making your research reproducible.*
  University of Cambridge PostDoc Masterclass, 2016.
  Slides doi 10.6084/m9.figshare.3203929.v1

*Introducing the STEMM Role Models database.*
  Achieving Diversity in Tech, 2016.
  Slides doi 10.6084/m9.figshare.3188422.v1

*Adolescent myelination of association cortical hubs of the human brain connectome* .
  NSPN International Scientific Advisory Board Meeting, 2015.

*Do teenagers really have no prefrontal cortex? Using MRI to study the developing brain.*
  Clare College After Dinner Talk Series, 2015.

*Longitudinal changes in white matter microstructure predict reasoning ability.*
  Society for Neuroscience Annual Meeting, 2012.

*Longitudinal development of analogical reasoning through childhood and adolescence.*
    Society for Neuroscience Annual Meeting, 2011.

*Structural connections underlying reasoning development.*
    Conference on Neurocognitive Development, 2009.

## Software Development

**STEMM Role Models (2016-date)**
- Founder and lead developer of the STEMM Role Models database: a tool to support conference organisers ensure their invited speakers represent the best and most diverse academic researchers or professional engineers/developers working in the field.
- Openly developed on GitHub, featured in Mozilla Science's Collaborate project database.
- Runner up of the Rosalind Franklin Appathon in February 2016 [Prize: £500].

## Scholarships & Prizes

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| Mozilla Science Fellowship | September 2016 - June 2017 | $ 63,000 (US) |
| OHBM Hackathon Travel Award | June 2016 | $ 500 (US) |
| Rosalind Franklin Appathon<br>Runner Up Prize for STEMM Role Models | February 2016 | £ 500 |
| Elizabeth Roboz Einstein Fellowship | January 2011 - June 2011 | $ 3,000 (US) |
| T.I. Liu Fellowship | August 2009 - July 2010 | $ 30,000 (US) |
| Fulbright Scholarship | August 2007 - July 2008 | $ 100,000 (US) |
| Commonwealth Scholarship | September 2004 - August 2006 | $ 80,000 (CAD) |

## Research Mentorship

**Graduate**
- Supervised visiting PhD student investigating structural brain imaging analyses and graph theoretic approaches to understanding differences in brain development related to first episode psychosis and child abuse (January 2015 to May 2015).
- Responsibilities included welcoming and orienting student on arrival in Cambridge, teaching concepts and practical implementations of cortical thickness and network analyses, facilitating logistical challenges, hypothesis formation and holding regular meetings.

**Undergraduate**
- Supervised 3rd year undergraduate Neuroscience honours project *Quantifying reproducibility in white matter brain imaging: a travelling heads study*, awarded upper second class honours (November 2015 - June 2016).
- Responsibilities included teaching concepts and practical implementations of multi-modal structural brain analyses, training skills for effective review, comprehension and application of the current academic literature, guidance and editing of the written manuscript, facilitating logistical challenges, study design and hypothesis formation, and holding regular meetings.

## Teaching

**Affiliated Lecturer, Department of Psychology, University of Cambridge**
- Designed and lead lab course on *Brain Structure and Measurement* for first year undergraduates in Psychology and Behavioural Sciences (Michaelmas term 2013,2014,2015). Extended course for second year undergraduates in Experimental Psychology program (Michaelmas term 2014,2015)
- Responsibilities included designing the curriculum, providing learning materials and laboratory exercises to facilitate understanding of functional and structural brain imaging (MRI, EEG, ECoG) and basic neuroanatomy using openly available software (MRIcron), online tools (NeuroSynth) and in person demonstrations with a preserved human brain.

**Academic Supervisor, Department of Psychology, University of Cambridge**
- Planned and lead small group (1-4 students) tutorials for second year undergraduates in Experimental Psychology (January 2013 - May 2016).
- Responsibilities include setting and grading essay questions each week, ensuring that students are understanding the broad range of topics covered in the lectures and stimulating their breadth and depth of understanding through external readings and discussion.

**Guest Lecturer, Department of Psychology, University of Cambridge**
- Instructed small group of students on *Neuroimaging of typical and atypical brain development and the emergence of mental health disorders* as part of the *Human Brain Mapping – Methods and Results from functional Magnetic Resonance Imaging* workshop for final year undergraduate students in Neuroscience (Michaelmas term 2013,2014,2015).

**Laboratory Instructor, Summer Institute in Cognitive Neurosciences**
- Designed and instructed afternoon lab sessions on analysing task-based functional MRI data in FSL for 70 graduate and post-doctoral fellows (July 2011).
- Responsibilities included designing an curriculum that was appropriate to a wide array of abilities, providing data and instructions for both statistical analyses and the use of a specific software tool (FSL).

**Graduate Student Instructor, Department of Molecular and Cellular Biology, University of California at Berkeley**
- Planned and lead discussions for first and second year undergraduates for *Mind, Brain and Behaviour* (Spring 2010) and *Exploring the Brain* (Fall 2008).
- Responsibilities included teaching to large (more than 100 students) and small (20-30 students) groups, conducting weekly office hours for individual students, creating and grading weekly assignments and working collaboratively with other instructors to design, administer and grade three examinations each term.

**Teaching Assistant, Department of Physics, University of British Columbia**
- Planned and lead tutorials for first and second year undergraduates in *Mechanics for Engineers* (Spring 2005,2006) and marked assignments for final year students taking *Applied Optics* (Fall 2006).

# Professional and University Service

**Secretary of the University of Cambridge Women's Staff Network**
- Coordinated online surveys and in person meetings at multiple locations around Cambridge to solicit feedback on equality and diversity initiatives from staff members at all levels (2014-date).

**Member of the Open Educational Resources 2016: Open Culture conference programme committee**
- Responsible for coordinating peer review of 60 (from a total 180) abstracts, curating responses and working with team members to decide on final accepted presentation list (2015-16).

**Member of the OpenCon Cambridge conference organising committee**
- Worked with team members to plan programme goals, invite speakers, co-ordinate logistics and promote event. Responsible for opening and closing remarks, and to introduce presentations on the day (2015, 2016).

**Peer reviewer**
- Completed reviews of original research and review articles for Cerebral Cortex, NeuroImage, Developmental Cognitive Neuroscience, Social Cognitive and Affective Neuroscience, Psychological Medicine, British Medical Journal Psychiatry and Network Neuroscience.
- Completed funding application reviews for the US-UK Fulbright Association.

**College Research Associate at Clare College Cambridge (2014-15)**

# Professional Development

**Open Science Leadership**
- Attended by invitation Mozilla Science Lab's *Working Open Workshop* in Berlin and became member of the inaugural Open Leader's Cohort (February 2016).
- Advisor for Mendeley reference manager (2014-date).
- Contributor to StackOverflow (2016-date).

The three day workshop covered essentials of working openly, bringing on contributors, using collaboration tools such as Git and GitHub, and growing an active community around an open project. Mentorship of the STEMM Role Models project continues through June 2016.

**Public Policy and Neuroethics**
- Member, by selection, of the Science Policy Fellowship 2016 cohort. Included half day policy impact training for early career researchers on *The Educated Brain: from the Neuroscience to the Practice of Lifelong Learning*. Responsibilities include producing policy documents for three up-coming research day seminars and workshops. Funded by the Economic and Social Research Council and run by the Cambridge Public Policy Strategic Research Initiative and Cambridge Neuroscience (April 2016).
- Was selected for and completed a full day professional development policy workshop for behavioural scientists run by the Centre for Science and Policy (2014).
- Participated by invitation in a Cambridge Neuroscience neuroethics panel discussion of the effects of adolescent gaming on adolescent brain development (February 2016).
- Completed an online course on *Neuroethics* run by the University of Pennsylvania through Coursera (2013).

The policy workshops provide scientists with the tools required to ensure their work has the highest impact at the national level, focusing on educating researchers on the processes and challenges involved in actioning government initiatives, and how to communicate clearly with policy makers.

**Undergraduate Teacher Training**
- Completed, with distinction, the online course *An Introduction to Evidence-Based Undergraduate STEM Teaching* run by Vanderbilt University through Coursera (2014).

The course explored effective teaching strategies for college or university STEM classrooms and required weekly quizzes and essays and lesson plans as peer-graded assignments for successful completion.

**Data Science**
- Completed, with distinction, two online courses, *The Data Scientist's Toolbox* and *R Programming*, run by Johns Hopkins University through Coursera (2015).
- Completed, with distinction, *Python Programming for Everybody* online course run by University of Michigan through Coursera (2015).
- Completed, with distinction, *Data Management for Clinical Research* online course run by Vanderbilt University through Coursera (2013).

The courses cover skills required by data scientists and including automated statistical analyses in R, text mining and big data manipulations in Python and data management using the Research Electronic Data Capture (REDCap) toolkit.

**Neuroimaging Analyses**
- Completed the week long FSL and Freesurfer course (2009).
- Was selected for and completed the highly competitive two week residential Advanced Neuroimaging Training Program at the University of California at Los Angeles (2009).

These courses teach experimental design, functional and structural neuroimaging analyses techniques through lectures and hands-on tutorials. UCLA summer school also covered neuroanatomy and MRI acquisition.


# Outreach

**Women in Science and Technology - mentoring and leadership**
- One of three members on the leadership team for the Cambridge Women in Technology meet up group which organizes networking opportunities, professional development and all levels of computer coding instruction for our 400+ members (2014-date).
- Organiser of and Python coding coach for Codebar Cambridge workshops that enable underrepresented groups to learn programming in a safe and collaborative environment and expand their career opportunities (2014-date).
- Speed mentor at the Women of the World in Cambridge Festival and Cambridge Science Festival (March 2016).

**Presentations - career development**
- Spoken as a Fulbright alumna to new outgoing Fulbright and Sutton Trust awardees, as well as senior school educators and career development advisors at various events in London and Cambridge. I focus on my experiences as a cultural and academic ambassador on behalf of the United Kingdom to the United States and Canada and the diversification of academic science, particularly encouraging women to pursue careers in STEM fields (2013-date).

**Presentations - science**

- Presented to many (>10) school groups in the San Francisco Bay Area and Cambridge about scientific methods to image the human brain and how neuroimaging may elucidate psychological behaviours. More recently presentations have included discussions of mental illness and its treatment. Many talks were at the request of student lead organisations and/or for schools supporting students from a low socio-economic status background (2008-date).
- Funded by a Society for Neuroscience outreach grant I participated in seven *Mind and Brain Nights* at four schools in the San Francisco Bay Area. I designed, constructed and presented a booth focusing on pre- and post-natal brain development and childhood cognitive milestones (2008–2012).
- Provided lab tours to showcase developmental cognitive neuroscience research to school students, teachers and education policy makers. These often included tours of the UC Berkeley Brain Imaging Center and demonstrations of MRI acquisition and analysis (2008-2012).

# Referees

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| **Name** | Prof Ed Bullmore | **Name** | Prof Ian Goodyer |
| **Position** | Head of Dept of Psychiatry | **Position** | Professor of Child & Adolescent Psychiatry |
| **Institution** | University of Cambridge | **Institution** | University of Cambridge |
| **Contact** | etb23@cam.ac.uk | **Contact** | ig104@cam.ac.uk |