DR BECKY INKSTER

I am a neuroscientist. My research examines digital interventions in mental health, especially those aimed at helping disadvantaged populations. I also use tools in molecular biology, neuroimaging, epidemiology, psychology, and psychiatry to improve our understanding of mental health. I have 5 years of experience in senior research management roles and I am extremely passionate about engaging with society, youth culture, and the arts.

ACADEMIC QUALIFICATIONS

Oct 2002 – Jan 2007	DPhil Degree , Department of Psychiatry, University of Oxford, UK. Supervisor: Prof. Paul Harrison. Thesis title: "Investigations of gene expression in the pathogenesis of schizophrenia:
Sept 1998 – June 2002	experimental and post-mortem studies" BSc Degree (Honours), Specialist Psychology, University of Toronto, Canada

EMPLOYMENT & AFFILIATIONS

Apr 2017 – Mar 2019	Honorary Research Fellow, Department of Psychiatry, University of Cambridge, UK
June 2017 – May 2018	Visiting Scholar, Columbia School of Social Work, Columbia University, USA
Nov 2011 – Mar 2017	Wellcome Trust Strategic Award (£5.3m) Neuroscience in Psychiatry Network Senior Research Manager, Department of Psychiatry, University of Cambridge, UK
Nov 2014 – ongoing	Wolfson College Research Associate, University of Cambridge, UK
Apr 2011 – Nov 2011	Research Manager , Department of Forensic and Neurodevelopmental Science, Institute of Psychiatry, King's College London, UK
Sept 2008 – Apr 2011	Neuroimaging Genetics Research Associate, Imperial College London, UK
July 2006 – Sept 2008	GlaxoSmithKline Research Associate, GSK Clinical Imaging Centre, London, UK
Oct 2005 – July 2006	MRI Research Assistant , University of Oxford Centre for Clinical Magnetic Resonance Research, John Radcliffe Hospital, Oxford, UK
Sept 2000 – Aug 2002	Neurogenetics Research Assistant , Centre for Addiction and Mental Health (CAMH) University of Toronto, Canada

AWARDS, FUNDING & MEMBERSHIPS

- Vice Chancellor's Public Engagement in Research Award, University of Cambridge (2016)
- Wellcome Trust Small Arts Award Co-Investigator. "Depths of My Mind" (UNS22355); ~£40K (Jul-Oct 2016)
- Wellcome Trust Small Arts Award Co-Investigator. "Research and Development: aerial theatre collaboration between Scarabeus Theatre and the Neuroscience in Psychiatry Network (NSPN)". Awarded; ~£25K; 110529/Z/15/Z) (Nov-Jan 2016)
- Cambridgeshire & Peterborough NHS Trust (CPFT) funding awarded to host a Patient & Public Involvement (PPI) Young Person Mental Health Service User Advisory Group. Title: "Facebook, Ethics and Mental Health" (Feb, 2016)
- Senior Communications Prize awarded by the British Association of Psychopharmacology (2015)
- Committee Member, Postdoctoral Committee, Department of Psychiatry, University of Cambridge (2014–2015)
- Lloyds Bank Social Entrepreneurs Programme shortlisted as first reserve (2014)
- RCPsych Prize (Brian Oliver Research Prize, Faculty of Learning Disability) shortlisted (2013)
- Wellcome Trust Value In People Award (1.0 FTE salary; 6 months). Department of Statistics, Imperial College London. Applying multivariate statistical methods to imaging genetics data sets (Oct–Apr 2011).
- Imaging Genetics Creativity Lab funds awarded by Imperial College London to host an international meeting (2011)
- Full Blue Awards. University of Oxford Basketball Team Captain (2003-2006)

SCIENTIFIC SKILLS

Throughout my scientific career, I have attained a wide-range of first-hand experiences in neuropsychiatric genetics, molecular neuropathology, epigenetics, neuroimaging, statistical modeling of Big Data, neuropsychopharmacology, mood disorder clinical trials, and epidemiology with my most recent commitment to exploring social media data to bring innovation to mental healthcare through improving identification of risk factors and refining psychosocial interventions, especially for disadvantaged, hard-to-reach, low resource populations.

Outcomes:

- I examine digital data (e.g., social media data) in my psychiatry and neuroscience research. Some of my work uses a longitudinal framework to relate historical records of 'online' digital social networking data to 'offline' multiple time point measures of psychopathology and neurobiological data. This has lead to high impact publications (e.g., Lancet Psychiatry) and invitations to speak internationally. I concurrently maintain a strong commitment to my neuroscience research (e.g., GSK3beta biological function, hippocampal structure, cognition and mood disorder treatment with the drug, EPO; resulting in high impact publications, e.g., Biol Psychiatry, PNAS).
- I am currently developing a unique conference called "Innovation & Strategies for Digital Interventions in Mental Health" which will interleave complex themes across psychiatry, social media technology, ethics, global mental health, culture and neuroscience. Conference outcomes aim to include: Special Issue publication based on outcomes of the conference, to form a sustainable multi-disciplinary consortium to apply for future funding combining these themes, generate funds to sustain and grow the conference annually, to produce new social programmes based on conference workshop outcomes (e.g., technology transition tools for prisoners).
- I am a co-investigator on the NSPN study, "Healthy Immune & Brain Adolescence; HIBA" (lead by Prof Bullmore), which profiles healthy adolescent immune systems using novel imaging techniques and advanced flow cytometry methods.
- I created a multi-disciplinary working environment with colleagues in statistics, neuroimaging and genetics to develop multivariate statistical genetics methods to apply to imaging data sets (Imperial College & Wellcome Trust Award).
- I contributed to the development of advanced structural neuroimaging methodologies, which I lead on integrating with genetics data resulting in multiple publications, and presentations internationally (GSK Clinical Imaging Centre).
- I have various skills using neuroscience software & IT packages: FSL, SPM, Freesurfer, PLINK, R, Matlab, RedCap etc.

COMMITMENT TO SOCIETY & COMMUNICATION SKILLS

Co-Founder of HIP HOP PSYCH (Nov 2012 – ongoing):

This social venture draws connections between mental health and hip-hop music in several ways: (i) public health campaigning to de-stigmatise mental health and educate the general public in diverse settings (e.g., prisons, lecture halls, night clubs, pubs, African Caribbean Societies, large concert and conference halls etc.); (ii) improve recruitment of medical students into psychiatry and improve knowledge among psychiatry trainees in psychopathology, addiction, psychosocial models etc.; (iii) explore how hip-hop could be used to refine psychotherapies.

Outcomes:

• (i) HIP HOP PSYCH's *The Lancet Psychiatry* publication (2015) is ranked no. 1 of all time for most Shares, Likes, Comments on the University of Cambridge Facebook Page and ranked no. 9 of all time for most views on the University of Cambridge website, which captured a much broader, younger audience; (ii) Interviewed by BBC World Service, broadcasted to ~200 million listeners; (iii) Senior Communications Prize (British Association of Psychopharmacology).

NSPN Public Outreach & Social Media Manager (Nov 2011 – ongoing):

Promoting NSPN through public engagement and applying for Arts awards, social media engagement, NSPN website creation, Facebook Page, study team intranet site etc.

Outcomes:

• I am a co-applicant on an awarded Wellcome Trust Small Arts Grant for an aerial theatre & NSPN collaboration called "Depths of My Mind". We obtained funds to support aerial theatre performance collaborations between Scarabeus Theatre and NSPN focusing on ways of merging the arts with NSPN scientific findings. We experimented with new methods and involved a Young Person Advisory Group to inform the production; (ii) I helped launch NSPN by working with the BBC for the 6 o'clock news coverage, Radio 4, international radio, and liaising with film companies.

Patient & Public Involvement (PPI) for my Social Media Data Research (Nov 2015 – ongoing):

I engage with Young People Advisory Groups (especially mental health service users) to develop my research ideas that explore the use of social media data to better detect mental illness factors and to better intervene and use these tools to enhance personalized patient care. The views of patients have not been emphasized enough in this new field and so this is a key area. I work closely with the User and Carer R&D Manager for Cambridgeshire & Peterborough NHS Foundation Trust (CPFT) and the Participation Coordinator, Community Child & Adolescent Mental Health Services (CAMHS). We ran our first workshop to discuss the views of young service users about social media data sharing, ethics, privacy etc.

Outcomes:

• I received valuable qualitative and quantitative feedback measures from attendees, which greatly improved the translation of my research ideas. This information is also being translated into a scientific paper, entitled: "Ethical issues of social media data use in research: what do mental health service users think?" (In prep, 2017).

MANAGEMENT & LEADERSHIP SKILLS

Responsible for NSPN governance, protocol development, ethics, R&D, developing operating procedures, study manuals, multi-site employment and management of scientific and clerical staff (~40 people), financial reporting, securing off-grant funding, insurance/contract agreements, sponsorship liaising, networking amongst multiple NHS and non-NHS organisations, establishing committee structures, attending/chairing meetings (NSPN Senior Research Manager; University of Cambridge).

Outcomes:

- I successfully used my negotiation skills paired with my scientific knowledge to save resources and NSPN funds while also securing additional funds for NSPN (e.g., obtaining off-grant support costs) (University of Cambridge).
- I proactively pursued management training. For example, I completed a Personal and Professional Development course to improve my ability to categorise and manage risk in more measurable ways, I established contingency strategies for staff members as they worked toward demanding deadlines, and I gained awareness about the importance of perception of progress for staff and stakeholders and communicating and building in 'small victories'. I have received excellent staff feedback (available upon request) about my management style (University of Cambridge).
- I have taken on additional non-NSPN staff & research managerial duties. For example, I manage ethics/R&D for a large cohort study called ROOTS (£1m funded by the Wellcome Trust; 2013 ongoing). I have advised additional studies with REC/R&D, SOP design, case report form and manual creation etc. (University of Cambridge).
- I was Project Manager for all ongoing departmental neuroimaging and genetics studies, with some work involving setting up multi-centre collaborations with UCLA, USA (Institute of Psychiatry).
- I managed several large-scale neuroimaging genetics projects involving Major Depressive Disorder (collaborators: Max Planck Institute, Germany), Alzheimer's disease (collaborators: Western University, Canada and Cardiff University, Wales), and Multiple Sclerosis (collaborators in The Netherlands and Switzerland) (GSK Clinical Imaging Centre).
- I was the key operational lead of running 2 MRI scanners. I managed all neuroscience study bookings and interacted with patients, clinicians, and researchers, while also initiating several scientific collaborations (University of Oxford).

COLLABORATIVE SKILLS & TEACHING

I seek innovation by initiating collaborations across academic settings, various industries (e.g., music, technology, pharmaceutical), organisations, charities and individuals. Example collaborations I have initiated include: (i) with a reputable international accessories designer based in LA/NYC to develop an urban mental health/neuroscience jewelry/accessories range to reduce stigma, (ii) with Vikram Patel (named TIME Magazine's top 100 most influential people) to develop social media mental health projects in India, (iii) connections with multiple offline Longitudinal Big Data cohort teams to explore how to leverage these existing data sets for my social media data studies (e.g., ALSPAC) (iv) as part of Hip Hop Psych, we initiated collaborations to do events inside prisons, nightclubs, African Caribbean Societies, Medical Humanities departments, launching a new building at the Institute of Psychiatry & Maudsley NHS. I also work collaboratively in areas such gang networks and Twitter violence (Desmond Patton; Columbia University), and others working with refugees, postnatal PTSD, prisoners and more.

I have experience teaching for MSc courses (Title: "Psychiatric Genetics & Epidemiology", University of Cambridge, 2014 & 2015; Title: "Mental Health in Learning Disabilities", Institute of Psychiatry, 2011). I am extremely passionate about utilizing interactive teaching and learning technological tools. Some of my publications have been integrated into the coursework of 4th Year Psychology undergraduate studies (Oberlin College, Ohio, USA).

PUBLICATIONS

Sule A, Inkster B. Eminem's character, Stan: a bio-psycho-social autopsy. Accepted. The Journal of Hip Hop Studies, 2017.

Inkster B, Stillwell D, Kosinski M, Jones PB. A decade into Facebook: where is psychiatry in the digital age? The Lancet Psychiatry, 2016; 3(11): 1087-1090.

Whitaker KJ, Vertes PE, Romero-Garcia R, Vasa F, Moutoussis M, Prabhu G, Weisskopf N, Callaghan MF, Wagstyl K, Rittman T, Tait R, Ooi C, Suckling J, **Inkster B**, Fonagy P, Dolan RJ, Jones PB, Goodyer IM, Bullmore ET. Adolescence is associated with transcriptionally patterned consolidation of the hubs of the human brain connector. PNAS, 2016; 113(32): 9105-9110.

Miskowiak KW, Vinberg M, Macaveanu J, Ehrenreich H, Køster N, **Inkster B**, Paulson OB, Kessing LV, Skimminge A, Siebner HR. Effects of erythropoietin on hippocampal volume and memory in mood disorders. *Biol Psychiatry*. 2015: 78(4): 270-7.

Sule A, Inkster B. Kendrick Lamar: street poet of mental health. The Lancet Psychiatry. 2015: 2(6): 496-7.

Inkster B, Sule A. Drug term trends in American hip-hop lyrics. J Public Mental Health. 2015: 14(3): 169-73.

Toseeb U, Inkster B. Online social networking sites and mental health research. Frontiers in Psychiatry. 2015: 6(36). 1-4.

Sule A, Inkster B. A hip-hop state of mind. The Lancet Psychiatry. 2014: 1(7): 494-495.

Weiskopf N, Suckling S, Williams G, Morgado Correia M, **Inkster B**, Tait R, Ooi C, Bullmore ET, Lutti A. Quantitative multi-parameter mapping of R1, PD*, MT and R2* at 3T: a multi-center validation. *Front. Neurosci. Brain Imaging Methods*. 2013; 7(95): 1-11.

Inkster B, Strijbis EM, Vounou M, Kappos L, Radue EW, Matthews PM, Uitdehaag BM, Barkhof F, Polman CH, Montana G, Geurts JJ. Histone deacetylase gene variants predict brain volume changes in multiple sclerosis. *Neurobiol. Aging*. 2013; 34(1): 238-247.

Strijbis EM*, Inkster B*, Vounou M, Naegelin Y, Kappos L, Radue EW, Matthews PM, Uitdehaag BM, Barkhof F, Polman CH, Montana G, Geurts JJ. Glutamate gene polymorphisms predict brain volumes in multiple sclerosis. *Mult. Scler.* 2013; 19(3): 281-288.

Coghlan S, Horder J, **Inkster B**, Mendez MA, Murphy DG, Nutt DJ. GABA system dysfunction in autism and related disorders: from synapse to symptoms. *Neurosci. Biobehav. Rev.* 2012; 36(9): 2044-2055.

Inkster B, Rao A, Ridler K, Filippini N, Whitcher B, Nichols T, Wetten S, Gibson R, Borrie M, Kertesz A, Guzman D, Loy-English I, Williams J, Saemann PG, Auer DP, Holsboer F, Tozzi F, Muglia P, Merlo-Pich E, Matthews PM. *GOLM1* genetic variation associations with prefrontal cortex morphology and Alzheimer's disease risk. *Neurobiol Aging*. 2012; 33(3): 457-465.

Dixson L, Ridler K, Nichols T, Saemann P, Auer D, Holsboer F, Muglia P, Matthews PM, **Inkster B**. Thyroid transporter gene polymorphisms and brain structural differences in healthy controls and patients with major depressive disorder. *Psychoneuroendocrinology*. 2011; 36(6): 929-934.

Inkster B, Rao AW, Ridler K, Nichols TE, Saemann PG, Auer DP, Holsboer F, Tozzi F, Merlo-Pich E, Muglia P, Matthews PM. Structural brain changes in patients with recurrent major depressive disorder presenting with anxiety symptoms. *J. Neuroimaging*. 2011; 21(4): 375-382.

Inkster B, Nichols TE, Saemann PG, Auer DP, Holsboer F, Muglia P, Matthews PM. Pathway-based approaches to imaging genetics association studies: wnt signaling, GSK3beta substrates and major depression. *Neuroimage: Special Issue on Imaging Genetics*. 2010; 53(3): 908-917.

Miskowiak KW, Favaron E, Hafizi S, Inkster B, Goodwin GM, Cowen PJ, Harmer CJ. Erythropoietin modulates neural and cognitive processing of emotional information in biomarker models of antidepressant drug action in depressed patients. *Psychopharmacology*. 2010; 210(3): 419-428.

Inkster B, Nichols T, Saemann P, Auer D, Holsboer F, Muglia P, Matthews P. Association of GSK3B polymorphisms with brain structural changes in major depressive disorder. *Arch Gen Psychiatry*. 2009; 66(7): 721-728.

Miskowiak K, Favaron E, Hafizi S, **Inkster B**, Goodwin G, Cowen P, Harmer C. Effects of erythropoietin on emotional processing biases in patients with major depression: an exploratory fMRI study. *Psychopharmacology* 2009; 207(1): 133-142.

Mannie Z, Norbury R, Murphy SE, **Inkster B**, Harmer CJ, Cowen PJ. Affective modulation of anterior cingulate cortex in young people at increased familial risk of depression. *Br J Psychiatry*. 2008; 192(5): 356-361.

Miskowiak K, **Inkster B**, O'Sullivan U, Selvaraj S, Goodwin GM, Harmer CJ. Differential effects of erythropoietin on neural and cognitive measures of executive function 3 and 7 days post-administration. *Exp Brain Res.* 2008; 184(3): 313-321.

Miskowiak K, **Inkster B**, Selvaraj S, Wise R, Goodwin GM, Harmer CJ. Erythropoietin improves mood and modulates the cognitive and neural processing of emotion 3 days post administration. *Neuropsychopharmacology*. 2008; 33(3): 611-618.

Miskowiak K, **Inkster B**, Selvaraj S, Goodwin GM, Harmer CJ. Erythropoietin has no effect on hippocampal response during memory retrieval 3 days post-administration. *Psychopharmacology*. 2007; 195(3): 451-453.

Inkster B, Muglia P, Jain U, Kennedy JL. Linkage disequilibrium analysis of the dopamine beta-hydroxylase gene in persistent attention deficit hyperactivity disorder. *Psychiatr Genet*. 2004; 14(2): 117-120.

Muglia P, Jain U, **Inkster B**, Kennedy JL. A quantitative trait locus analysis of the dopamine transporter gene in adults with ADHD. *Neuropsychopharmacology* 2002; 27(4): 655-662.

SUBMITTED / IN PREPARATION FOR SUBMISSION 2017

Kiddle B, **Inkster B**, NSPN Consortium. Neuroscience in psychiatry network cohort profile. Submitted to International Journal of Epidemiology, 2017.

Inkster B, Meshi D, Kosinski M, Stillwell D, Nicodemus K. Why geneticists should leverage social media data. In prep for submission to Nature Genetics, 2017.

Inkster B, Zai G, Lewis G, Miskowiak KW. GSK3beta: a plausible mechanism of hippocampal change induced by erythropoietin treatment in mood disorders. Submitted to Biological Psychiatry, 2017a.

Inkster B, Simmons A, Cole J, Schoof E, Linding R, Sämann PG, Holsboer F, Matthews PM, Lewis C, McGuffin P, Nicodemus K. Replicated epistasis relates to GSK3beta, hippocampal volume and major depressive disorder. In prep for submission to Biological Psychiatry, 2017b.

Perez Vallejos E, Allan S, Kwon H, , **Inkster B**. Ethical issues of social media data use in research: what do mental health service users think?" In prep for submission to J Medical Ethics, 2017.

Inkster B, Vounou M, Montana G, ADNI Consortium. Genetic screening of the human kinome identifies a cellular signalling network predictive of brain atrophy in Alzheimer's disease. In prep for submission to Neurobiology of Aging, 2017.

SELECTED PRESENTATIONS & MEETINGS (2010 - current)

* Invited Speaker

The International Conference of Hip-Hop Studies* Title: "Drug Trends in Hip-Hop Lyrics". Wolfson College, Cambridge, UK.

23rd June 2016 [as part of HIP HOP PSYCH].

Strategies for Managing Social Media Research Data & Digital Method Developments Workshop* Title: "Where is Psychiatry in the Digital Age". Cambridge University Library and the Digital Humanities Network Cambridge, University of Cambridge, UK. 12th Feb 2016 [as part of my social media data research].

MQ Annual Science Meeting 2016 & "Improving Children and Young People's Mental Health Through Research and Policy" Session. Invited Attendee. Mental Health Conference, London, UK. 4-5th Feb 2016.

The World Congress of Psychiatric Genetics; Plenary Session* Title: "Hip-Hop & Mental Health: Straight Outta Cambridge Tour". Toronto, Canada. 17th Oct 2015 [as part of HIP HOP PSYCH].

Avon Longitudinal Study of Parents and Children (ALSPAC) Seminar* Title: "Bringing ALSPAC into the Digital Age". Bristol University, UK. 8th Sept 2015 [as part of my social media data research].

University of Cambridge Inaugural Annual Research Ethics Committee Event: Ethics, Integrity of Research Data and Research Online Workshop* Title: "Is psychiatry ready for social media?" University of Cambridge, UK. 18th June 2015 [as part of my social media data research].

Parc Prison Young Offenders Institution (Security class: Category B Adult Males/Young Offenders/Juveniles) Seminar to Prisoners* Title: "HIP HOP PSYCH: resilience and plasticity". Bridgend, Wales. 14th Apr 2015 [as part of HIP HOP PSYCH].

The Lancet Psychiatry & Dylan Thomas Centre present: HIP HOP PSYCH Briefing* Title: "The portrayal of mental health in hip-hop lyrics". Swansea, UK. 13th Apr 2015 [as part of HIP HOP PSYCH].

Oxford University African Caribbean Society* Title: "Using hip-hop as a vehicle for raising awareness about mental health". Oxford, UK. 16th May 2014 [as part of HIP HOP PSYCH].

The Ortus Centre: opening event to launch their new building, Institute of Psychiatry & Maudsley NHS* Title: "Hip Hop Psych – a new conversation about mental health". South London, UK. 21st Nov 2013 [as part of HIP HOP PSYCH].

The Centre of Medical History, University of Exeter & Wellcome Trust Event* Title: "HIP HOP PSYCH presents: exploring hiphop lyrics for mental health messages". Exeter, UK. 17-18th Oct 2013 [as part of HIP HOP PSYCH].

Cognition and Brain Sciences Unit* Title: "New directions for neuroimaging genetics studies: a molecular biological perspective". Medical Research Council, Cambridge, UK. Apr 2012 [as part of my imaging genetics research].

The Wellcome Trust Centre for Neuroimaging Title: "New directions for neuroimaging genetics studies: a molecular biological perspective" University College London, UK. Feb 2012 [as part of my imaging genetics research].

The Centre for Neuroimaging Sciences Title: "Neuroimaging and genetics: what's not working?" Institute of Psychiatry, King's College London, UK. Oct 2011 [as part of my imaging genetics research].

Human Brain Mapping Conference* Title: "MeCP2 affects prefrontal structure and metabolism differentially in healthy subjects and MDD". Québec, Canada. June 2011 [as part of my imaging genetics research].

The Cardiff University Brain Research Imaging Centre (CUBRIC) Title: "Imaging genetics: making distinctions between motion and progress". Cardiff University, Wales, UK. Feb 2011 [as part of my imaging genetics research].

National Institute of Mental Health* Title: "Using biologically-driven pathway-based hypotheses to guide imaging genetics studies". Genes, Cognition and Psychosis Program, NIH, Maryland, USA. May 2010 [as part of my imaging genetics research].

British Chapter ISMRM* Title: "Thyroid hormone transporter gene variants and grey matter volume changes in depression". Institute of Psychiatry, King's College London, UK. Mar 2010 [as part of my imaging genetics research].

Center for Integrated Molecular Brain Imaging (CIMBI)* Title: "What can imaging genetics tell us about the therapeutic

effects of erythropoietin in depressed patients?" Neurobiological Research Unit, Copenhagen University Hospital, Denmark. Mar 2010 [as part of my imaging genetics research].

Psychiatric Neurogenetics Group Seminar* Title: "Imaging genetics association studies in major depression: Wnt signaling, GSK3beta substrates and major depression". Centre for Addiction and Mental Health (CAMH), University of Toronto, Canada. Feb 2010 [as part of my imaging genetics research].