**Career contributions**

In relation to this application, summarise what you consider to be your key experience and achievements/contributions (e.g. publications, patents, impacts on policy). For each, provide details of when it came about, why you think it is important and what impact it has had.

1) Early-life Pathways into Major Mental Illness: My work has contributed to the discovery of an important and so far neglected pathway into Depression and Anxiety in young people. In particular, we have shown through a combination of epidemiological and genetic work that young people with irritability have a high probability of developing depression and anxiety in later life. Relevant to this are my previous Wellcome Trust Intermediate Fellowship, and papers such as : its epidemiology here: https://pubmed.ncbi.nlm.nih.gov/19318881/   and here https://pubmed.ncbi.nlm.nih.gov/19570932, its genetic structure https://pubmed.ncbi.nlm.nih.gov/22193524/  its measurement: https://pubmed.ncbi.nlm.nih.gov/22574736/ and have conducted an RCT for its treatment: https://pubmed.ncbi.nlm.nih.gov/31128268/

This work has contributed to international nosology as it was central to considerations for DSM-5 and ICD-11 around Oppositional Defiant Disorder, as well as Disruptive Mood Dysregulation Disorder. The measure we developed has been adopted by the American Psychiatric Association.

2) Mechanisms Leading to Adolescent Depression: My work has also contributed to the discovery that reward processing aberrations are an antecedent and possible causal mechanism involved in depression in adolescents. We have shown this via longitudinal studies, for example: https://pubmed.ncbi.nlm.nih.gov/26085042/ and https://pubmed.ncbi.nlm.nih.gov/28946760/, its links with stress https://pubmed.ncbi.nlm.nih.gov/31324591/, meta-analytic studies of its effects https://pubmed.ncbi.nlm.nih.gov/29921146/ and how treatment impacts on it, e.g.https://pubmed.ncbi.nlm.nih.gov/30606271/ and here https://pubmed.ncbi.nlm.nih.gov/34126264/.

3) Computational and predictive models relevant to psychopathology: Some of the fundamental questions in mental health concern the feasibility of prediction as well as the ability to apply theory in a rigorous way. We have recently described a novel theoretical computational model for mood https://pubmed.ncbi.nlm.nih.gov/34128464/  and described its magnetoencephalographic correlates https://pubmed.ncbi.nlm.nih.gov/34921602/. In terms of prediction, we have developed novel explainable machine learning models to help us predict individual differences in cognition in youth: https://pubmed.ncbi.nlm.nih.gov/35697648/ and here https://pubmed.ncbi.nlm.nih.gov/35903877/.