



Economic
and Social
Research Council



Human Performance and Next-generation Facial Identification Technologies

ESRC DTP Collaborative Studentship

University of Birmingham and VisionMetric

The Midlands Graduate School is an accredited Economic and Social Research Council (ESRC) Doctoral Training Partnership (DTP). One of 14 such partnerships in the UK, the Midlands Graduate School is a collaboration between the University of Warwick, Aston University, University of Birmingham, University of Leicester, Loughborough University and the University of Nottingham.

[University of Birmingham](#) as part of Midlands Graduate School is now inviting applications for an ESRC Doctoral Studentship in association with our collaborative partner [VisionMetric](#) to commence in October 2023.

Project Description

Our perception and recognition of human faces is central to life. Our brains continuously make judgements, such as whether a face is familiar, or a facial expression indicates happiness. We can generally *introspect* to assess our uncertainty in these judgements, attributing confidence.

Recently, there have been huge technological advances in Artificial Intelligence (AI)-powered synthesised material. The Generative Adversarial Networks (GANs) deep-learning method can synthesise highly realistic images of fictional people (Fig1). Studying human experience and perception in relation to GAN and related AI techniques, advances theory and practical applications in multiple domains, including forensics.



Fig 1. Example GANs-generated faces by Visionmetric

This project addresses important questions about face perception, recognition, and introspection. It will involve psycho-perceptual, behavioural experiments (e.g., “When can humans detect real faces from GANs faces?”), and neuroscience experiments (e.g., “Can we identify electrophysiological markers to directly measure face recognition memory and introspection (confidence) from the brain?”).

The industrial partner—[VisionMetric](#)—is best known for its innovative facial-composite system EFIT6, which is licensed to ~75% of UK police constabularies, and law enforcement agencies in 30 countries. VisionMetric is interested to expand their product-base to include identity-parades and mug-shot books using GANs-generated faces, and further develop systems to elicit memories from a witness (e.g., via EEG) without relying on their behavioural response. For this it is essential to understand the human, psycho-perceptual issues around AI-generated stimuli.

The project will be supervised by [Dr Melissa Colloff](#), [Professor Howard Bowman](#), and in collaboration with [VisionMetric](#). The student will develop a diverse skills-set, including in behavioural and neuroscience experimental techniques, forensic applications, AI and computer science, and relationships with non-academic networks. The student will work alongside researchers engaged in related work within the [Applied Memory Lab](#). The student will also have the opportunity for a study visit to [Professor Colin Tredoux](#) at the University of Cape Town. Experience in computer science is desirable but not essential as this can be provided as part of the studentship.

Application Process

To be considered for this PhD, please complete the Collaborative Studentship application form [available online here](#). Please upload an anonymised CV and cover letter as part of the online application process. Shortlisted applicants will also be required to provide transcripts and two references.

Application deadline: 11.59pm (BST) on Tuesday 28 February, 2023
Interviews will take place on Friday 10 March, 2023

Midlands Graduate School ESRC DTP

Our ESRC studentships cover fees at the home rate, a maintenance stipend, and extensive support for research training, as well as research activity support grants. Support is available to both home and international applicants. For further details, visit: www.mgsdtp.ac.uk/studentships/eligibility/.

Informal enquiries about the research or The School of Psychology at The University of Birmingham prior to application can be directed to Dr Melissa Colloff (m.colloff@bham.ac.uk).