Imperial College London

Department of Computing – iBUG Group

Research Assistant (PhD Fellowship)

SW-DEE-02

Fixed Term Appointment for up to 36 months

The Department of Computing is a leading department of Computer Science among UK Universities. It has consistently been awarded the highest research rating (5*) in Research Assessment Exercises (RAE) and is rated 10th in the world by the Times Higher Education International Outlook.

An exciting opportunity has arisen for two PhD fellowships funded from two exciting and recently started H2020 projects: SEWA (Automatic Sentiment Analysis in the Wild) and DE-ENIGMA (Multi-modal Human-robot Interaction for Teaching and Expanding Social Imagination in Autistic Children). This will involve building automated, computer vision and machine learning tools for machine understanding of (typical or atypical) human interactive behaviour in naturalistic contexts. The envisioned technology will be based on findings in cognitive sciences and it will represent a set of visual spatiotemporal methods for automatic analysis of human spontaneous (as opposed to posed and exaggerated) patterns of behavioural cues such as facial gestures, vocalisations such as laughter and consent, and head gestures. The methods to be developed will need to perform adaptive (person- and/or context-sensitive) continuous and discrete analysis of human-computer and human-robot interactive behaviour. Particular attention will be placed on design and development of novel machine learning and computer vision algorithms that exploit in depth one (or both) of the following learning approaches:

1) Context-sensitive modelling of multi-modal behavioural data. This includes definition of novel models that can successfully generalize across different contexts (e.g., through the subject adaptation and/or culture adaptation) and can use the context information to deal with asynchrony and discordance of different modalities such as facial, head/body, and vocal expressions.
2) Deep-learning from multi-modal behavioural data. The aim is to exploit the deep learning paradigm in order to design and develop more accurate and robust learning methods for affect recognition using the innate property of deep networks to automatically discover optimal feature representations from the multi-modal input. Extensions of deep methods so that they can handle structured output (e.g., increasing intensity levels of facial gestures) and temporal modelling of target affective data will also be the focus of this research direction.

Within the project, the applicant will be responsible for development of effective and efficient machine learning algorithms for computer-vision-based understanding of human behaviour that address challenges listed in (1) or (2) or both. The applicant is expected to publish his/her works in top conferences (CVPR, ICCV, ECCV, ICML, and alike) and journal papers (TPAMI, IJCV, TAC, TIP, and other high-impact journals).

The project involves significant research and development challenges, and the end results will contribute to development of more natural human-computer and human-robot interfaces as well as to development of computer-based analysis of human spontaneous (typical or atypical) behaviour displayed in various contexts.

To apply for this position, you will need to have a strong background in maths, computing or engineering. You must have proven knowledge and track record in one or more of the following areas: machine learning, computer-vision and statistical modelling. Ideally, you will have prior experience in modelling of audio-visual human behaviour data. You will also have a Masters degree in an area pertinent to the subject area, i.e., Computing, Physics or Engineering. The creative and **independent** thinking is required. You must also have excellent communication skills and be able to organise your own work with minimal supervision and prioritise work to meet deadlines. Preference will be given to applicants with a proven research record and publications in the relevant areas. This post will be based at the South Kensington Campus.

You will be part of the Intelligent Human Behaviour Understanding Group (iBUG), Visual Information Processing Research Section, within the Computing Department and based at the South Kensington campus. For further information on the group and related projects http://www.doc.ic.ac.uk/~maja/

How to apply:
Our preferred method of application is via email. Please send your CV, list of references, and a cover-letter explaining why you are suitable for the advertised position to <sebastian.kaltwang08@ic.ac.uk>. The subject of the email should be "Application for PhD Position SW-DEE-02".

Closing Date: 15 April 2016 (Midnight GMT)

Imperial Managers lead by example.

Committed to equality and valuing diversity. We are also an Athena SWAN Silver Award winner, a Stonewall Diversity Champion, a Two Ticks Employer, and are working in partnership with GIRES to promote respect for trans people