

FURTHER DETAILS

Department of Computer Science, Queen Mary University of London

The Computer Vision group

The Computer Vision group is one of the largest in the UK and internationally leading in its work on the extraction of object behaviour models and dynamic face models from image sequences and live video. The work has been widely applied to vehicle and people detection, object tracking, counting and recognition in public space CCTV, human gesture recognition for visually mediated interaction and abnormal behaviour recognition in visual surveillance. A current significant focus is in crime prevention, with work on real-time surveillance and biometrics.

Core expertise includes dynamic scene analysis, mathematical modelling, multi-view geometry, pattern recognition and learning, biologically inspired vision and image compression. An additional new research line concerns the extraction of 3D information from image sequences using geometric information. In particular, research is being carried out into self-calibration of cameras and 3D metric reconstruction of scenes viewed by uncalibrated cameras. Work is also being undertaken to develop novel computer vision algorithms and hardware based on neurobiological principles.

The LIREC project

LIREC Living with Robots and intEractive Companions.

This exciting multidisciplinary project, combining the strengths of 10 partners throughout Europe, aims to develop prototype robotic and graphical avatar systems capable of long term engagement with users in real social environments. The project will establish a multi-faceted (memory, emotions, cognition, communication, learning, etc.) theory of artificial long-term companions, embody it in innovative technology, verify the theory and technology experimentally in real social environments, and provide guidelines for designing such companions. Whether as robots, social toys or graphical synthetic characters, interactive and sociable technology is advancing rapidly. However, the social, psychological and cognitive foundations and consequences of such technological artefacts entering our daily lives over an extended period are less well understood. This project will build upon existing robotics technologies to develop and experimentally evaluate a framework supporting long-term companionship. We will study human interact with animal pets to model viable companion behaviour. Companions will be developed with different capabilities, relating to a common cognitive-affective architecture, depending on their intended use. This may involve the ability to detect and respond sensitively to the user, regard his or her possible motives and intentions, and encompass several forms of communication. The scenarios will let humans interact with robots and/or graphical companions in their day-to-day lives over periods of weeks or months. We will also explore the possibility of social interactions where the 'mind' of a companion might migrate to a differently embodied 'bodies' such as to a mobile phone. The project draws upon skills across a range of scientific disciplines and will develop new theory and experimental methodologies, and consider ethical aspects of human-robot companionship.

The LIREC project is awaiting final EU sign off (expected no later than end of January 2008).

The LIREC Project Partners

This is a joint project between the Swedish Institute of Computer Science, INESC-ID in Portugal, Heriot Watt University, University of Hertfordshire, Otto-Friedrich-University Bamberg Germany, Wroclaw University of Technology, Poland, Eötvös University, Hungary and SMEs FOAM in Belgium and Cnotinfor Ltd in Portugal.

Queen Mary has responsibility for overall project coordination and also developing novel computer vision frameworks to support complex social interactions. It is expected that both posts will contribute to both the research and administrative coordination aspects of the project.

Post Details

Postdoctoral Research Assistant

The research assistant position requires a PhD (or working towards one) in an appropriate discipline, a good publication record, and research experience in computer vision or a related subject area. A strong research background and good computer programming skills are desirable. The post primary responsibility will be to develop a computer vision systems capable of identifying a set of socially relevant gestures in a range of social interactions, and assisting in the integration of the vision system with speech recognition systems developed by another Partner. The post will also involve evaluation of the effectiveness of the systems developed, and may therefore involve some extended lab visits in the UK and overseas. Candidates must also be willing to be actively involved in the supporting the administration, including help coordinating necessary reports and project deliverables, and attending frequent project meetings. This will involve extensive travel within the UK and Europe. Previous experience of involvement in EU funded projects is desirable.

Programme Project Manager

The Project Manager position involves management of internal project documentation and specifications, supervising project progress according to objectives and work plan, organizing meetings, collecting & reviewing reports, negotiating disputes, communicating between the commission and project partners, ensuring that project timetables are maintained, keeping accurate and up-to-date record of costs, resources and time scales, and maintaining the project website. Applicants should have experience in administration or management.