

EPSRC CDT in Distributed Algorithms

PhD Project: Development of Advanced AI techniques for Human Action and Behaviour Recognition

University of Liverpool

PhD Student: Jianyang Xie

Project Partner: [Remark AI](#)

Supervisors:

Yalin Zheng, University of Liverpool

Anh Nguyen, University of Liverpool

Xiaoyun Yang, Remark AI

Project Description

Human action and behaviour recognition are essential for many industry and healthcare applications. Some progress has been made on the analysis of static images, however, there are many behaviours that cannot be answered by still images because of the timing of the behaviour motion. With the advances of science and technology and the convenience of people's life, video files have become easy to obtain. Video files record the time sequence of human behaviours and actions, the objects of occurrence, and the environment in which they occur. Effective and accurate human behaviour recognition will be a key enabler for a variety of applications.

There are some considerable problems in the analysis of video files for human behaviour and action detection. Video processing involves 3D network to process frames of images, which will generate a lot of parameters and computational overhead. In turn, this poses problem to computing hardware in terms of speed and memory and excessively large network is not suitable for practical application. This project aims to develop new machine learning techniques for human motion and behaviour recognition from video underpinned by advanced distributed computing techniques.

This project will focus on the development of machine learning and high-performance computing methods for the accurate and effective recognition of human action and behaviour. Deep learning techniques will be investigated towards high recognition performance with smaller network architecture. New computing approaches will be studied to speed up the process via GPU. The models will be developed and validated by public and private datasets.

Go to the [EPSRC CDT In Distributed Algorithms](#) website.