

Project proposal template – Faculty studentships Summer 2014

<i>Project title</i>	Human Pose Tracking by combining Machine Learning with Physics Models	<i>Director of Study</i>	Dimitrios Makris
<i>Second Supervisor</i>	Demetrios Venetsanos	<i>School</i>	Computing and Infor ▼
<i>Other members of supervisory team</i>	Vasileios Argyriou	<i>Any requirements from applicant (eg degree in specific subject area)</i>	Degree in Computer Science, Engineering, Mathematics or ▲ ☰ ▼

**Project summary
(max 1,000 characters)**

Human Pose Tracking aims to estimate the articulate configuration of human in video sequences. It may benefit a wide range of applications such as sports analysis, rehabilitation, camera-based gaming and computer graphics. The main challenge of human pose tracking is the high complexity of human motion and the wide variance of human appearance. Most researchers have attempted to tackle the problem by using machine learning methods to train models of human motion and/or human appearance.

This project will investigate solutions that combine physics-based biomechanical models with machine learning approaches. For instance, pose tracking of walking persons may involve appearance and dynamic models learnt by pre-recorded images and videos of walking humans, combined with a biomechanical model that replicates bipedal locomotion.