ICT PHD

Research project for a PhD curriculum in ICT – Computer Engineering and Science

**Tutor**: Prof. Costantino Grana

**Proposed Title of the research**: Design and development of the European Computer Vision Library

**Keywords:**

medical imaging

image processing

computer-aided diagnosis

**Research objectives: (max 10 rows)**

Healthcare is one of the key sectors of the global economy. The use of technologies in health is a strong path to more efficient healthcare, benefitting both individual people and the public budgets. European public health systems are generating large datasets of biomedical images, as most medical examinations use image-based processes, which nowadays are generally performed manually. The DeepHealth project will combine HPC infrastructures with Deep Learning and Artificial Intelligence techniques to support biomedical applications that require the analysis of large and complex biomedical datasets and thus, new and more efficient ways of diagnosis, monitoring and treatment of diseases. The specific research objective is the realization of the European Computer Vision Library, an image processing and computer vision library which will be incorporated in the DeepHealth framework to increase the productivity of professionals working on biomedical images.

**Proposed research activity: (max 10 rows)**

Design and development of the European Computer Vision Library (ECVL). This activity includes the study of the most recent works on image processing applied to medical imaging, and the optimization of image processing and computer vision algorithms, in order to manipulate medical images in an efficient way. Besides research activities, the PhD student will attend classes on image and video processing, software optimization, and summer courses. Periods of activities in foreign labs are also possible.

**Supporting research projects (and Department)**

DeepHealth

**Possible connections with research groups, companies, universities.**

Universitat Politècnica de València, Spain

(\*) optional

(\*\*) optional/to be completed on the second year