

## Project proposal template – Faculty studentships Summer 2014

<i>Project title</i>	Parallel evolutionary algorithm for dense pixel matching in presence of distortions	<i>Director of Study</i>	Francisco Flórez-Revuelta
<i>Second Supervisor</i>	Jean-Christophe Nebel	<i>School</i>	Computing and Informatics <input type="button" value="v"/>
<i>Other members of supervisory team</i>	Barbara Pierscionek	<i>Any requirements from applicant (eg degree in specific subject area)</i>	

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

Dense pixel matching is an essential step required by many computer vision applications. While a large body of work has addressed quite successfully the rectified scenario, accurate pixel correspondence between an image and a distorted version remains very challenging.

This project will investigate the use of a new parallel evolutionary algorithm (EA) to find distortions between images. The structure of this EA replicates the topology of the problem so as good solutions for local distortions are propagated to neighbouring regions, obtaining the global distortion. A first approach of this idea was recently presented obtaining the best paper award [1]. This project will improve the proposed idea validating it in different problems: stereo matching, tracking in medical images, support to visually-impaired people ...

[1] A.C. dos Santos-Paulino, J. –C. Nebel, F. Flórez-Revuelta, Evolutionary algorithm for dense pixel matching in presence of distortions, Evostar 2014, Granada (Spain), 2014