2015/2016 EIS Summer Research Scholarship

Supervisor: A/Prof. Lam Phung

A scholarship of $5000 is provided for an excellent UOW undergraduate student to participate on a 10-week research project between 12/2015 and 02/2016.

Project title: Image Recognition Under Strong Geometric Distortions

Project description: Robust recognition of image patterns that contain strong geometric distortions is a current challenge in image processing and computer vision. The existing techniques to address this challenge can be divided into three major approaches. The first approach involves training a classifier with not only the original images but also their geometrically distorted versions. The second approach extracts hand-crafted image features that are stable under certain geometric transformations such as scaling or rotation. The third approach aims to produce a normalized image that remains the same under arbitrary geometric distortions. It is more computation-efficient than the first approach and more flexible than the second approach.

To date, we have developed an image normalization algorithm for linear geometric distortions, which are represented by affine transformations (translation, rotation, scaling, and shearing). The aim of this project is to investigate new image normalization algorithms for a more general type of geometric distortions, which are represented by projective transformations. The proposed algorithms will be applied for visual gist recognition and scene categorisation. This project is suitable for students with a strong mathematical background, experience in MATLAB or C/C++ programming and an interest in research.

To apply: Visit http://eis.uow.edu.au/scholarships/summer/index.html