

2014/2015 EIS Summer Research Scholarship

Supervisors: Dr. Lam Phung, Prof. Salim Bouzerdoum, Dr. Le Chung Tran

A scholarship of \$5000 is provided for an excellent UOW undergraduate student to participate on a 10-week research project between 12/2014 and 02/2015.

Project title: Data Acquisition and Processing for Through-the-Wall Radar Imaging

Project description: Through-the-wall radar imaging (TWRI) is a sensing technology that aims to capture scenes behind a wall, a door, or an opaque surface. These scenes are typically inaccessible via optical, acoustical, or thermal sensing. TWRI can be used to determine building layouts, monitor humans and other targets, and recognise their activities inside the building. The ability to see through walls is desirable in numerous applications in law enforcement, security, defence, and search and rescue.

The main aim of the project is to develop a portable data acquisition platform for TWRI. This platform should be able to generate, transmit, and receive electromagnetic (EM) signals in the range of 0.3 to 7.0 GHz. The project will involve designing the EM transceiver array, developing circuitry for high-speed data acquisition, and implementing image-formation algorithms in MATLAB and field programmable gate arrays. The project will require designing of printed circuit boards with precision controlled impedance transmission lines and distributed element filters. These boards will be optimised using an EM simulation package such as Agilent ADS. Once constructed, they will be evaluated using standard radio-frequency test equipment. The completed system is expected to be used for TWRI research at the UOW.

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