

PhD Scholarship at Australian Centre for Space Engineering Research

Required Background: Bachelor/Masters Degree in Physics or Electrical Engineering
Keywords: Signal processing, SAR, Antennas
Preferred Experience: Knowledge of SAR and signal processing
Application Deadline: 31/03/2012
Supervisors: Robert Middleton, Prof Andrew Dempster
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Chirp reference collection in bistatic SAR

Synthetic Aperture Radar (SAR) uses a matched filter to range compress collected echoes. The best matched filter is based on the actual (rather than nominal) transmitted chirp waveform. This waveform must be collected after it has passed through all of the radar components and processes that might modify it.

A bistatic, chip-based, deployable, phased-array antenna is planned for a space-borne SAR, and it is necessary to devise a system/technique for collecting a copy of the waveform that is transmitted to the scene. In the case of bistatic SAR, the transmitting antenna is at one location and the receiving antenna is at another location. It is proposed that the transmitting antenna could illuminate the receiving antenna directly in a controlled fashion to obtain a copy of the transmitted chirp waveform.

The project would involve analysis of this problem and development of techniques (and possibly hardware) to achieve high-quality transmitted chirp reference collection without damage to the receiver.

ACSER [and the Garada Project – if applicable] will be providing scholarships for some students. All prospective students should, however, apply for:

- Australian Postgraduate Award (APA; for Australian citizens) OR an
- International Postgraduate Research Scholarship (IPRS; International students).

Suitability for the ACSER and Garada scholarships will be assessed in the same way as applicants for APA and IPRS. For more information about these scholarships please go to <http://research.unsw.edu.au/postgraduate-research-scholarships>.

Further Information on the project may be obtained from Robert Middleton (r.middleton@unsw.edu.au)