ICRAR & ICRAR-Pawsey Summer Studentships 2016 - 2017
Project Proposal

Project Details	
Project Title	**Visualising and searching for new galaxies in HI4PI**
Primary Supervisor	Steven Janowiecki
Contact Details	steven.janowiecki@icrar.org 08 6488 7543
Additional Supervisors	Lister Staveley-Smith
Additional Resources Required	Computer
Student Location for project	UWA
Project Description	A new all-sky map of neutral hydrogen covering the Milky Way and nearby galaxies (HI4PI) has been created using telescopes in Australia and Germany. This project will search this data set for dark matter dominated and previously unseen galaxies. Finding these galaxies and measuring their space density is important in establishing their future evolution, and is fundamental to further understanding the formation of the Milky Way. In this project the student will use the new HI4PI maps to create new visualisations and animations. These will aid in their search for HI counterparts to Local Group candidates and previously unseen galaxies. They will also compare the HI4PI observations with multi-wavelength archival data to verify candidate matches.

Student Attributes	
Academic Background	Math and/or physics, computing skills desirable
Computing Skills	Familiar with computer programming, data manipulation, and ability to learn R, SoFiA
Training Requirement	-

Project Timeline	
Week 1	Background reading, familiarization with programs/environment, data acquisition
Week 2	Make simple visualisations of HI4PI data
Week 3	Make more complex visualisations, animations
Week 4	Search for possible LG candidates in HI4PI
Week 5	Add multi-wavelength data from archives
Week 6	(continued)
Week 7	Measure & match candidates between datasets
Week 8	(continued)
Week 9	Add additional data (HIPASS2,etc) as needed
Week 10	Prepare final report and talk
	Final Presentation