ICRAR & ICRAR-Pawsey Summer Studentships 2017-2018
Project Proposal

Project Details	
Project Title	**Controlling the astronomical data flow of IMAGINE**
Primary Supervisor	**Attila Popping**
Primary Supervisor Availability	Available for most of the time
Contact Details	Attila.popping@uwa.edu.au +61 8 6488 7929
Additional Supervisors & Contact Details	Chen Wu Chen.wu@uwa.edu.au
Additional Resources Required	Desktop computer, account on Pawsey
Pawsey Centre Hardware Use	Data from the IMAGINE survey will be processed on Magnus supercomputer at Pawsey. Supervisors have sufficient allocation.
Software Required	Student Desktop Requirements: • Python • Miriad Pawsey Centre software installations required: Supervisor's allocation.
Student Location for project	UWA
Project Description	Are you interested in programming and would you like to use a supercomputer to process large data volumes? In this project you will process many hours of astronomical observations using the Pawsey supercomputing centre. IMAGINE is a Legacy project on the Australia Telescope Compact Array (www.imagine-survey.org) that detects neutral hydrogen gas around galaxies using ~2500 hours of telescope time. We have basic methods to reduce IMAGINE data, however to process such amounts of data in an effective way a dedicated processing pipeline is required. This project will be using DaLiuGE, an execution framework for processing large astronomical datasets, which has been developed at UWA. Main aim of this project is to integrate and tailor existing scripts into the DaLiuGE framework and process all IMAGINE data using facilities at the Pawsey centre. Depending on the interest of the student, this work can be expanded by either creating better scientific images through improved data reduction or enhancing the data processing scalability and efficiency by optimising the data flow and processing components within DaLiuGE.
Student Attributes	
Academic Background	This project will implement the reduction pipeline of IMAGINE into DAliuGE, an automated execution framework. General interest and experience in computing and programming is essential, no prior knowledge in astronomy is required (although desirable)
Computing Skills	Familiarity with a scripting language such as Python and Linux bash would be ideal.
Training Requirement	See above

Project Timeline	
Week 1	Pawsey training (or inductions and project introduction)
Week 2	Familiarization with IMAGINE survey and processing scripts in Miriad
Week 3	Familiarization with DaLiuGE execution framework
Week 4	Designing a logical graph or pipeline for DaLiuGE
Week 5	Integrate the Miriad modules into DaLiuGE
Week 6	Finishing and testing pipeline end-to-end
Week 7	Process all IMAGINE data and analyse results
Week 8	(continued)
Week 9	Report writing
Week 10	**Final Presentation and Reporting**