EDITH COWAN UNIVERSITY

PROJECT DETAILS

Project Title:

Energy-Efficient and Secure Low Earth Orbit CubeSat Communications

Project Summary:

The project aims to advance radio frequency (RF) communication technologies for supporting payload development using the emerging low earth orbit (LEO) CubeSats. The intended outcome is an energy efficient and secure communication solution that is applicable to various CubeSat missions. Such innovation will have significant impacts in space industry, as it will eliminate communication and security concerns for CubeSats stakeholders, which will facilitate small industries to access the space technologies and thus reduce the cost of space services. Consequently, the project will boost the development of the space industries and help maintain Australia's leadership in CubeSats communication and security technologies.

Preferred Applicant Skillset:

We are looking for a self-motivated PhD candidate with excellent organisation, problem-solving and project management skills. Candidates with strong quantitative skills including familiarity with satellite communications, wireless communications, signal processing, key generation, physical layer authentication and software defined radios are desired.

Internship Opportunity:

The industry partner of this project is QL Space, Perth, Australia. QL Space is an Australian Earth observation data company. Itis currently investigating and designing various CubeSat services for various applications, e.g., precision mining, defence, and security, and has a strategic plan to launch its own CubeSats soon. Thus, one aim of this project and its developed technologies are closely connected to the long-term strategic plan of QL Space in the CubeSat section for the next decade. Therefore, the candidate has the internship opportunity to work closely with the experts in QL Space, e.g., identifying novel research problems from practical application scenarios.

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