EDITH COWAN UNIVERSITY

PROJECT DETAILS

Project Title:

Wireless covert communication in drone networks

Project Summary:

This project aims to address wireless covert communication in drone networks. Systematically, it will explicitly tackle the optimal design and performance limit of covert communications with a drone as a transmitter for conducting covert surveillance, as a receiver for collecting data covertly, or as a jammer to facilitate ground covert transmissions. It is anticipated that this will also generate new knowledge on defeating adversary drone-based covert communications. The expected outcomes may lead to radically new covert communication technologies and applications, significantly boosting the confidence level of using drones for conducting private data transmission in commercial, government and military applications in Australia.

Preferred Applicant Skillset:

We are looking for a self-motivated PhD candidate with excellent organization, problem-solving and project management skills. Candidates with strong quantitative skills including familiarity with drone communications, wireless communications, signal processing, detection theory, optimization theory 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. It is currently investigating and designing various drone applications. Thus, one aim of this project and its developed technologies are closely connected to the long-term strategic plan of QL Space in the drone-based services and applications. 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. In addition, we also have a strong connection with 13 Brigade, which is an Army Reserve formation of the Australian Army. It is currently headquartered at Perth in Western Australia and has units located across the state in locations such as Geraldton, Kalgoorlie, Albany, Katanning, Joondalup and Rockingham. We had a few discussions on joint PhD education in the context of drone-based covert communications. Therefore, the candidate will have the internship opportunity to work closely with the research team from 13 Brigade, e.g., to fully understand the applications of drone-based services in the military scenarios.

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