MONASH
ENGINEERING

MONASH University

Faculty of Engineering
Summer Research Program 2023-2024

Project Title: Quantum Key Distribution for Visible Light Communication

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Objective

The key objective is to implement quantum key distribution in visible light communication and assess its performance through software and possibly hardware implementation.

Project Details

Visible Light Communication (VLC) uses free space to transmit information using Light Emitting Diode (LED) or Laser Diode (LD) as transmitter and photodiode as receiver. Visible light spectrum is free and has a vast bandwidth compared to traditional radio frequency communication. If the LED transmitters are used for illumination, it helps to use the existing infrastructure for communication as well. Quantum key distribution can be used to make VLC secure and is one of most mature applications of quantum computing. In this project, candidates will model quantum key distribution in visible light communication using OptiSystem software. They will then explore the possibility of expanding this in a room using multiple LEDs and photodiode network. A basic version of this network can also be implemented using hardware.

Prerequisites

Background in optical and/or wireless communication, ability to learn and use software and eagerness to learn hardware implementation

Additional Information

Applicants may be required to attend an interview.