

Call for Graduate Research Assistant

Project Title: Enhanced Selection Method And Subcarrier Pairing Method For Multi-Relay Cellular System

Source of Funding: Fundamental Research Grant Scheme FRGS (Ministry of Education, Malaysia)

Project Duration: 2 years

Monthly Allowance: RM 1800.00 (Master) or RM2000.00 (PhD)

Location: Universiti Teknikal Malaysia Melaka (UTEM), Durian Tunggal, Melaka.

Project Summary

In next generation mobile communication system, a higher frequency bandwidth will be used because of limitation in low frequency bandwidth. The high frequency usage increases out of coverage area provided by a base station (BS). Since a large number of relay stations (RSs) are predicted to be implemented in the next generation mobile communication network to overcome the out-of-coverage problem, the RS must be designed as simple as possible to provide a low cost communication system. Subcarrier pairing Method (SCP) has become a hot topic in relaying technique because of its potential to reduce bit error rate (BER) of orthogonal frequency division multiplexing (OFDM) system. However this results only consider single relay case only which is unrealistic. The technique also does not consider peak to average power ratio (PAPR), where the PAPR must be kept as low as possible to use a low cost power amplifier (PA) at RS. PAPR reduction technique should be applied in RS, because PAPR reduction technique done in base station (BS) cannot be kept in RS. In this research, we propose a selection method among multiple RSs and adequate SCP with low PAPR to provide a low complexity and low cost RS. Matlab simulation tool and theoretical analysis. Both simulation and theoretical analysis is performed to prove the validity of our proposal. The results can be used by telecommunications company to design a low cost high broadband infrastructure in future

Project Research Area: RelayStation, Subcarrier pairing, LTE-Advanced,.

Requirements:

- Bachelor's degree in Electronic Engineering/Telecommunication Engineering/Computer Engineering or equivalent with a CGPA of 3.0 and above.
- Proficiency in Matlab/C++ languages.
- Proactive and able to carry out research independently.

Interested applicants can contact Dr. Norharyati Harum by email: norharyati@utem.edu.my
Please use the subject: **FRGS GRA Application** and include your resume/CV. Shortlisted candidates will be contacted for interview.