**Topic** Next Generation Cooperative Wireless Networks

The relays are employed in mobile cellular systems to extend coverage and increase the transmission rate at cell-edge. The project concentrates on the design and analysis of cooperative communication techniques suitable for the next generation wireless networks. The project will target a unified construction of advanced Alamouti space time block coding (The Multi Input Multi Output (MIMO) Alamouti scheme is an ingenious transmit diversity scheme for two transmit antennas that does not require transmit channel knowledge and is a simple space time block code) and network coding operations. Further, project aims to design associated signal processing algorithms for detections and the receivers. As the relay processing is central to the cooperative communication and in order to reap the benefits of this technique, a new set of physical layer relay scheme will be designed together with the distributed space time Alamouti block codes.

Applications are invited from candidates with a high level of academic achievement in computer science, engineering. The successful applicant will have a strong ability at mathematics and a good knowledge of MATLAB and C programming. Some expertise in error-correction coding and/or signal processing would be beneficial, but not essential. The project will be supervised by Nalin Jayakody and co-supervised by Vitaly Skachek.

**Level:** Master

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**References**

