An iMOVE CRC Industry PhD Project

PhD Scholarship

Signal control optimisation with connected and autonomous vehicles considering vulnerable road users

PROJECT SUMMARY

Connectivity and automation are expected to change the landscape of transport in the near future. However, harnessing their full potential to improve urban network traffic requires the development and the early adoption of new traffic control schemes that account for mixed traffic with connected and autonomous vehicles and human-driven vehicles. While a growing number of studies have explored these research questions, very few have considered vulnerable road users such as pedestrians and cyclists and their impact on autonomous intersection management strategies. Most autonomous intersection management algorithms do not consider pedestrians or dedicated cyclist access to intersections. The detectors on an autonomous vehicle enable the vehicle to react to jaywalking pedestrians, but the resulting unplanned stop may significantly reduce intersection capacity and throughput. Further, if deployed, traditional autonomous intersection management strategies will produce small gaps between vehicles and make the access to the intersection impossible for vulnerable road users. Hence, substantial research and development is needed to adapt existing autonomous intersection management strategies to accommodate movements of pedestrian and cyclists. This project aims to explore how traffic signal controls could be optimized for cases in which autonomous and connected vehicles are mixed with human-driven vehicles while interacting with vulnerable road users (e.g. pedestrians and cyclists) at intersections.

PROJECT PARTNERS

iMOVE CRC and Synergistic Traffic Consultancy

FUNDING

The successful candidate will receive an annual stipend of $35,000 AUD (tax free) for 3 years as well as $5,000 AUD per year for conference attendance and professional development.

BENEFITS

The student will gain real-world experience in the field of Intelligent Transport Systems. The project will strengthen student's technical and soft skills and provide opportunities to meet potential employers and create an industry network early in the PhD studies.

ELIGIBILITY

The scholarship is open to both domestic and international applicants. We encourage applications from women and ethnic minorities in Australia and overseas.

SELECTION CRITERIA
- Accredited degree in engineering, computer science, mathematics or operations research. Applicants with master's degree and relevant research experience in system control and optimisation are preferred.
- Experience in traffic modelling and optimisation.
- Excellent oral and written communication skills.
- Strong commitment to how the applicant will use the resources provided to develop his/her career and to engage with industry and knowledge exchange activities.

HOW TO APPLY
Please email your CV to meead.saberi@unsw.edu.au

To apply for PhD admission and scholarship please visit
https://research.unsw.edu.au/submit-application

Application is open until a suitable candidate is recruited.