

## **Title:** Next generation Transport Safety by Integrating Artificial Intelligence and Econometric models

**Speaker:**

Dr Yasir Ali (Senior Lecturer)

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**Location:** Room L407

**Date:** 21<sup>st</sup> April (Monday)

**Time:** 2.30 pm to 3.30 pm

**Abstract:** Traditional road safety assessments require an unusually large number of crashes to accrue before transport infrastructure can be diagnosed for safety. As such, traditional road safety models do not provide a complete picture of crash risk and are not capable of offering real-time road safety information. In this regard, Artificial Intelligence (AI)-based video analytics, together with traffic conflict techniques, offer a viable alternative for real-time assessment of transport infrastructure. In addition, high-quality trajectories captured by Autonomous vehicles as probes have also opened doors to revisit transport safety analytics. However, without considering the theoretical foundation of traffic conflicts and crashes, the estimation of crash risks might be misleading. This talk will present recent developments in traffic conflict techniques to estimate crash risks from traffic conflicts by jointly applying econometric and machine learning models. This talk will show how AI-based video analytics have been used to assess crash risk at transport facilities and demonstrate some use cases for real-time safety assessments and before-after evaluation of engineering treatments.

**Speaker Bio:** Yasir Ali, PhD (Civil Engineering), MSc (Transport Engineering), BSc (Civil Engineering):

Dr Ali is a Senior Lecturer of Cooperative Intelligent Transport Systems at the School of Architecture, Building, and Civil Engineering, Loughborough University, United Kingdom. Dr Ali is passionate about traffic engineering, with a specific focus on traffic safety, traffic flow/mobility, congestion management, and environmental sustainability. His expertise lies in the area of traffic safety, microscopic traffic flow modelling, connected and automated vehicles, driving behaviour, traffic conflict analysis, and advanced data analysis techniques. His research focusses on developing intelligent technologies to save lives, reduce congestion, and make travel greener. Dr Ali has delivered several projects on road safety in Australia and the UK and has published more than 70 peer-reviewed research articles in top-class journals and international conferences, with his papers garnering more than 2500 citations.