

Using artificial intelligence for tunnel fires



Dr Xiqiang Wu obtained his BEng (First Class) degree from Hefei University of Technology, MEng degree from Tongji University and PhD degree from The University of Hong Kong. Dr Wu joined the Department of Building Services Engineering at PolyU as a Research Assistant Professor in August 2020. He has published papers and served as reviewers for several journals, including Fire Technology and Journal of Structural Engineering. Dr Wu has a good understanding of fire modelling, structural behaviour in fire and artificial intelligence in these areas. Currently, he is working on a theme-based project, mainly focusing on the forecasting of critical fire events in large infrastructures using deep learning algorithms.

Abstract: Tunnel fire is one of the most severe global fire hazards and causes a significant number of economic losses and casualties every year. A quick and accurate identification for the fire source and prediction of fire development is of great scientific and practical value in fighting the tunnel fire and guiding fire rescue, while this is still a big challenge for actual tunnel fire events. The recent improvements in big data, artificial intelligence (AI) algorithms and computational capacity inspire new approaches to solve these problems. We established large databases containing fire simulations under various fire location, fire size, and ventilation condition. The database is then used to train AI models to identify and forecast the tunnel fire and give early warnings. The performance of the AI models is further demonstrated through small-scale tunnel fire tests. These works address the promising prospects of AI in firefighting and pave the way for future emergency-response tactics in a smart city. Through this webinar, you will understand how we adopt the AI algorithms for tunnel fires in detail.

SFPE Webinar (CPD Event)

Date: 16 April 2021 (Friday)

Time: 6:30 - 7:30 PM (HK)

9:30 - 10:30 PM (AEDT)

10:30 – 11:30 AM (GMT)

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