Joint Research by MTR and HKUST
Promoting Smart Traffic Management through AI and Big Data
Receives Multiple Awards at Hong Kong ICT Awards 2024

The "Hong Kong University of Science and Technology (HKUST) - MTR Joint Research Laboratory" ("Joint Laboratory") is dedicated to leveraging innovative technology for effective smart traffic management. In one of its research projects, the team utilised artificial intelligence and big data to simulate and predict changes in Hong Kong citizens' travel patterns under various scenarios, thereby assisting the operations team in implementing appropriate operational plans. This project has won multiple awards at the "Hong Kong ICT Awards 2024," including the "Smart Mobility (Smart Transport) Gold Award", "Best Use of AI Award," "Smart Mobility Grand Award," and the highest honour, the "Award of the Year".

The "dynamic simulation digital twin model" applied in this research integrates daily operational data from MTR, various bus routes, trams, and ferries. By simulating different operational scenarios, it predicts changes in passenger flow, facilitates crowd distribution analysis at interchange stations, and supports the implementation of effective crowd management measures, which include deploying additional staff at relevant stations, enhancing passenger information, and encouraging the use of alternative routes to disperse the flow, leading to significant outcomes.

Preliminary results from the model's analysis have provided valuable insights into traffic operations and management. The team will continue to advance their research further. Moreover, the Joint Laboratory is exploring the application of this digital twin model to predict changes in passenger flow on the MTR network following the launch of new railway lines or during major events, with the aim of enhancing operational efficiency.

"MTR is always dedicated to applying technology to enhance operational performance and management, striving to provide passengers with safer and more reliable services. We are delighted with the Joint Laboratory's achievements at the Awards. The valuable experience gained from this project will inspire us to continue to pursue excellence and address various operational challenges through innovative technologies. We also look forward to continuing our collaboration with HKUST and other partners to develop more innovative solutions. Together, we can foster cooperation among 'industries, academia, research and application', contribute to the advancement of smart railways and smart cities, and keep our city moving," said Dr Tony Lee, Operations and Innovation Director of MTR Corporation.

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HKUST Dean of Engineering Prof. Hong K. Lo, who leads the project, said, "We are honoured to be recognised with several major awards at the HKICT Awards 2024, which highlights the success of our collaboration with MTR in driving frontier smart transportation research and creating significant impacts on the community. The HKUST - MTR Joint Research Laboratory allows us to gain valuable insights into industry needs and leverage our research strengths to produce innovative and sustainable solutions to address real-world challenges. We look forward to working closely with MTR to propel Hong Kong into a hub of smart mobility by spearheading sustainable development initiatives." Prof. Lo is also the Director of the HKUST Great Smart Cities Institute and Chair Professor of the Department of Civil and Environmental Engineering.

The "HKUST-MTR Joint Laboratory", established by MTR Corporation, MTR Academy, and HKUST's GREAT Smart Cities Institute in June 2022, focuses on research projects which promote communication and collaboration on the development of smart communities and smart mobility within the MTR system through customised initiatives that address various needs across different areas, ultimately enhancing citizens' travel experiences and daily lives.

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About MTR Corporation

To Keep Cities Moving, MTR makes encounters happen and rendezvous for a more connected tomorrow. As a recognised world-class operator of sustainable rail transport services, we are a leader in safety, reliability, customer service and efficiency.

MTR has extensive end-to-end railway expertise with 45 years of railway projects experience from design to planning and construction through to commissioning, maintenance and operations. Going beyond railway delivery and operation, MTR also creates and manages dynamic communities around its network through seamless integration of rail, commercial and property development.

With more than 50,000 dedicated staff*, MTR carries over 10 million passenger journeys worldwide every weekday in Hong Kong, Mainland China, Australia, the United Kingdom and Sweden. Together, we Go Smart and Go Beyond.

For more information about MTR Corporation, please visit www.mtr.com.hk.

*includes our subsidiaries, associates and joint ventures in Hong Kong and worldwide

About The Hong Kong University of Science and Technology

The Hong Kong University of Science and Technology (HKUST) (https://hkust.edu.hk/) is a world-class university that excels in driving innovative education, research excellence, and impactful knowledge transfer. With a holistic and interdisciplinary pedagogy approach, HKUST was ranked 3rd in the Times Higher Education's Young University Rankings 2024, 19th Worldwide and No.1 in Hong Kong in Times Higher Education's impact Rankings. Twelve of HKUST's subjects were ranked among the world's top 50 in the QS World University Rankings by Subject 2024, with "Data Science and Artificial Intelligence" being ranked first in Hong Kong and 10th in the world. Our graduates are highly competitive, consistently ranking among the world's top 30 most sought-after employees. In terms of research and entrepreneurship, over 80% of our work was rated "Internationally excellent" or "world leading" in the latest Research Assessment Exercise 2020 of Hong Kong's University Grants Committee. As of October 2024, HKUST members have founded over 1,800 active start-ups, including 10 Unicorns and 14 exits (IPO or M&A).

Photo Caption:

1. The "HKUST - MTR Joint Research Laboratory" 's digital twin project received multiple awards at the "Hong Kong ICT Awards 2024", including the "Smart Mobility (Smart Transport) Gold Award", "Best Use of AI Award," "Smart Mobility Grand Award," and the highest honour, the "Award of the Year" .

2. The Joint Laboratory showcased its award-winning innovative solution at the "Hong Kong ICT Awards 2024," utilising a dynamic simulation digital twin model to predict changes in passenger flow by simulating different scenarios.