Ma Tianhao (Ryan Ma)

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PROFESSIONAL SKILLS

Python, ArcGIS Pro, AutoCAD, VISSIM, Anylogic, MATLAB;
Experienced with traffic data analysis, intersection design, signal control, transport simulation, spatial accessibility analysis, GIS mapping .etc.

EDUCATION

The University of Hong Kong **Hong Kong**
*Master of Science in **Urban design and Transport*** *Expected June 2027*

- GPA: 3.26/4.3
- Relevant coursework: Programming and Foundations in Urban Data Analysis, Spatial Mobility Analytics, Spatial Planning Analytics, Future Street Design Studio, Morphologies & urban design theories

Chang'an University **Xi'an, China**
*Bachelor of Engineering in **Traffic Engineering*** *September 2021 - June 2025*

- GPA: 86.06/100.00
- Relevant coursework: Traffic Engineering, Road Capacity Analysis, Transportation Economics, Python Programming, Discrete Mathematics, Operations Research and Traffic Systems Analysis, Transportation Terminals, Principles of Urban Planning, Traffic Safety Engineering and Highway Facility Design, Transportation Planning, Traffic Design, Public Transportation

INTERNSHIP EXPERIENCE

Shenzhen Urban Planning and Design Institute **Shenzhen, China**
Intern, Second Municipal Engineering Institute *July 2024 - August 2024*

- Supported preliminary project reviews by organizing technical materials, summarizing expert comments, and tracking follow-up revisions across teams.
- Analyzed basic traffic operation indicators, including lane configuration, turning movement organization, and potential conflict points at intersections.
- Assisted in refining a road marking design issue affecting vehicle flow, supporting more feasible and standards-compliant project delivery.

PROJECT EXPERIENCE

Spatial Analysis of Jobs-Housing Relationship in Hong Kong's Northern Metropolis **The University of Hong Kong**
Core Team Member *September 2025 - December 2025*

- Integrated census data, Foursquare POIs, and transportation network data to build a spatial analysis database for jobs-housing relationship evaluation.
- Applied OLS and geographically weighted regression to compare model performance and identify spatial heterogeneity across employment categories.
- Visualized local R^2, spatial autocorrelation, and 2033 job distribution predictions to support TOD and multi-center development recommendations.

Optimization of Channelization Design and Signal Control Plan for the Intersection of Fengcheng 7th Road and Weiyang Road **Xi'an, China**
Core Team Member *October 2023 - December 2023*

- Collected and processed traffic volume, speed, and lane occupancy data using Excel and MATLAB for intersection performance diagnosis.
- Built VISSIM simulation models to evaluate traffic operation under different channelization and signal control scenarios.

- Optimized signal timing plans based on simulation outputs, including delay, queue length, and traffic efficiency indicators.

Research on Overloaded Freight Vehicle Tire Classification and Recognition Using Computer Vision **Xi'an, China**

Core Team Member *July 2023 - April 2024*

- Participated in a provincial-level innovation project developing a computer vision system for overloaded freight vehicle recognition.
- Assisted in image data collection, preprocessing, model training, validation, and result analysis.
- Integrated YOLOv8 and ResNet models for tire detection and feature extraction under complex traffic scenarios.

Research on Secondary Traffic Accident Early Warning Device Using Computer Vision Technology **Xi'an, China**

Core Team Member *June 2022 - May 2023*

- Participated in a national-level innovation project developing a real-time secondary traffic accident early warning device.
- Collected and analyzed traffic-related data using Python to identify accident patterns and support system optimization.
- Supported model testing and technical documentation, contributing to a utility model patent for the warning system.

2023 MCM/ICM Meritorious Winner **Xi'an, China**

Core Team Member *May 2023*

- Processed and visualized Wordle gameplay data using Python to analyze engagement trends and solve distribution patterns.
- Built CNN-LSTM forecasting models and applied EWM-TOPSIS with decision tree methods for word difficulty classification.
- Authored model analysis sections and presented results through clear visualizations and quantitative interpretation.

LANGUAGE SKILLS & INTERESTS

- Languages: Chinese Mandarin (Native), English (IELTS 7.5)
- Interests: Tennis, Go-Karting, Badminton, Swimming