

Ruiqiang XIAO

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EDUCATIONAL BACKGROUND

Southeast University

Nanjing, China

B.E. in Highway and Bridge Engineering, School of Transportation

Sept. 2018-June. 2022

- Overall GPA: 3.65/4; Grade: 89.67/100

National University of Singapore (NUS)

Singapore

A one-year joint training program between NUS and Southeast University

Sept. 2021-May 2022

The Hong Kong University of Science and Technology (HKUST)

Hong Kong, China

- CGA: 4.06/4.3; TGA: 4.06/4.3

MSc in Data-driven Modeling, School of Science

Sept. 2022-expected Jun. 2023

HONOURS AND AWARDS

- **Honours:** Subot Scholarships (2021-2022) (top 1 out of 95),
- **Awards:** First Prize of Jiangsu Student Transportation Technology Competition (2021) (top 6 out of 122), The Provincial Second Prize Contemporary Undergraduate Mathematical Contest in Modeling (2020)

RESEARCH EXPERIENCE

The Detection Of Apparent Cracks In Bridges Using Computer Vision

Nanjing

Project Leader

Aug. 2021-Jun. 2022

- Studied convolution neural networks, deep learning, and other algorithms related to computer vision and analysis.
- Used a deep learning model and Yolov5's image recognition algorithm to recognize targets in apparent cracks images.
- Quantified the identified cracks based on lens distortion correction and orthogonal projection method.
- An article in process of modifying: **YOLOv5s-GTB: light-weighted and improved YOLOv5s for bridge crack detection** (<https://arxiv.org/abs/2206.01498>)

Medical image segmentation using active contour and deep learning methods

Hong Kong

Project Leader (In process)

Sep. 2022-present

- Based on U-net framework, using the classical active contour methods as loss function for segmentation of image datasets
- Transfer the loss function to the recently emerged deep learning methods in the future.

Automated Road Information Extraction Based On Mobile Laser Scanning Point Cloud Data

Nanjing

Project Member

Aug. 2020-Aug. 2021

- Applied a region-growing approach to extract longitudinal and transverse road level data sets in the region.
- Developed a linear index-based segmentation strategy for quickly segmenting point cloud data into voxels, pillars, etc.
- Utilized a data refinement approach to correct the noise issue caused by the surface segmentation in the pavement.

Vehicle Dispatching Policy Considering User Preference Based On Reinforcement Learning

Singapore

Project Leader

Aug. 2021- May. 2022

- Employed NYC taxi data to study the behavior preferences of carpooling users on domestic and international platforms.
- Developed incentive strategies to maximize the platform matching efficiency and the satisfaction of passengers.
- Implemented multi-agent reinforcement learning framework, ordered allocation system using deep Q-networks.

WORKING EXPERIENCE

Hong Kong Center for Construction Robotics(HKCRC)

Hong Kong

Part-time research intern

Sep. 2022-Jan. 2023

- Data collection and organization, tracking the latest construction industry in Hong Kong.
- Put up with plans for robotics aimed for digitalization of construction site.

SKILLS

- **Programming skills:** Python, MATLAB, C++, R, SQL