

Mark Zhou

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EDUCATION

UNIVERSITY OF TORONTO

MASTER IN INFORMATION

Dec 2025 | Toronto, ON

RYERSON UNIVERSITY

BS IN COMPUTER SCIENCE

May 2022 | Toronto, ON

Award: Undergraduate Research

Opportunities over \$10,000

Dean's List

COURSEWORK

GRADUATE

Statistics for Data Science

Data Modeling and Database Design

Experimental Design for Data Science

Data Analytics: Introduction, Methods

and Practical Approaches

Convex Optimization

Graphic Design for UX

Adopting DevOps for Large-Scale

information Systems

UNDERGRADUATE

Database Systems

Operating Systems

Web Systems Development

Machine Learning

Intro to Computer Vision

Data Structures

Artificial Intelligence

Autonomous Mobile Robotics

Undergraduate Thesis

SKILLS

PROGRAMMING

Over 3000 lines:

Python • Matlab • \LaTeX

Over 1000 lines:

C • C++ • Julia • Assembly • Bash

Tools:

Git • VS Code • LaTeX

Platforms:

Ubuntu • Windows • IOS • Gazebo • ROS

• Arduino

Familiar:

OpenCV • TensorFlow • PyTorch •

MySQL • Scikit-Learn

Bilingual:

Chinese • English

RESEARCH EXPERIENCE

TORONTO INTELLIGENT SYSTEMS LAB | RESEARCH ASSISTANT

University of Toronto | Sept 2022 - Nov 2022 | Toronto, ON

- Supervised by Dr. Igor Gilitschenski and PhD student Samarth Sinha.
- Developing 3D scenes reconstruction.

ROBOTICS AND COMPUTER VISION LAB | RESEARCH ASSISTANT

Toronto Metropolitan University | Nov 2020 - Aug 2022 | Toronto, ON

- Supervised by Dr. Sajad Saeedi.
- An algorithm was created to reduce the number of keypoints for feature extraction and maintain the distribution.
- Using Colmap to generate 3D point cloud and projection from 3D point cloud to 2D plane using OpenCV.
- Develop new efficient maps for robotics applications.

PROJECT

A NEW EFFICIENT MAP REPRESENTATION FOR ROBOTIC

Toronto Metropolitan University | May 2021 - Aug 2022 | Toronto, ON

Worked with Christopher Kolios, **Prof Sajad Saeedi** and **Prof Yeganeh Bahoo**. To develop map representations consisting of sparse features occupy less storage than images and comparison of ORB, SIFT, AORB, and ASIFT features for image reconstruction using a deep learning network.

COMPARE FEATURE MATCHING RATE

Toronto Metropolitan University | Sep 2021 - Apr 2022 | Toronto, ON

Overview and implement CNN, ORB, SIFT, and Affine SIFT feature extraction algorithms on Python. Compare extraction time, number of matches, and match rate.

ANALYSIS DATA BY ASSOCIATION ANALYSIS AND CLUSTERING ANALYSIS

Toronto Metropolitan University | Dec 2021 - Apr 2022 | Toronto, ON

Utilized the Car Evaluation Data Set to solve several practical problems, including association analysis and clustering analysis.

SAFE DRIVING ASSISTANCE

Toronto Metropolitan University | Sep 2021 - Dec 2021 | Toronto, ON

Implemented lane keep assistance by using the infrared photoelectric sensor and implemented autonomous emergency braking by using an ultrasonic sensor.

TITANIC MACHINE LEARNING FROM DISASTER

Toronto Metropolitan University | Sep 2021 - Dec 2021 | Toronto, ON

Overview and implement Support vector, random forest, logistic regression, and design a neural network. Compared to classic machine learning classifiers, our neural network has the highest accuracy of 80.28%.

APPLY QUADTREE ON ASIFT TO REDUCE KEYPOINTS

Toronto Metropolitan University | Sep 2021 - Dec 2021 | Toronto, ON

Implemented a method to reduce the number of keypoints and maintain evenly distributed features. The reduction rate is over 96%.