

Resume: Jialeng Ni

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EDUCATION

University of Michigan

Bachelor of Science in Computer Science and Engineering

GPA: 3.89/4.0 Honors: Dean's List, Winter 24 & Fall 23 | Jackson and Muriel Lum Undergraduate Scholarship

Ann Arbor, MI

08/2023-Present

Shanghai Jiao Tong University

Bachelor of Science in Electrical and Computer Engineering

GPA: 3.81/4.0 Honors: Undergraduate Outstanding Scholarship (B-level) 2022-2023 & 2021-2022 | Excellent Student Volunteer 2022

Shanghai, China

09/2021-Present

PROJECT EXPERIENCE

VR relief: Virtual Reality Based Metal Relaxing Application [🔗 Homepage](#)

VR relief Team, University of Michigan

VR relief, powered by Unreal Engine(UE5) and Meta VR Technology, aims to improve mental well-being through immersive experiences.

- Designed and implemented a natural and realistic environment by Landscape Pro. Utilized UE5 to implement customized and diverse interactions, such as gardening and fishing practices.

Ann Arbor, MI

10/2024-12/2024

RESEARCH EXPERIENCE

Human Error Model: Autonomous Vehicle Safety Metrics

Mcity, University of Michigan

This project mainly studies the impact of human errors, such as driver inattention, on traffic safety. By integrating these error factors into a collision prediction model, the system can issue warnings of potential collisions to both human drivers and autonomous vehicles.

- Designed and developed a safety metrics pipeline, including early negligence assessment and trajectory prediction, enabling a rapid-response collision warning system.
- Developed NeuralMetric, an end-to-end machine learning-based safety metrics. NeuralMetric significantly enhances computational efficiency, achieving a 100 - 1,000x improvement while boosting collision prediction accuracy compared to traditional safety metrics.

Publications: [1] X. Yan, H. Sun, J. Ni, H. Zhu, S. Feng, and H. Liu, "NeuralMetric: An Accurate and Efficient Real-time Safety Metric for Automated Driving Systems" *Under Review at the 25th International Symposium on Transportation and Traffic Theory* [🔗 Paper](#)

Ann Arbor, MI

02/2024-09/2024

TeraSim 1.0: Realistic Autonomous Vehicle Simulation and Testing Platform

Mcity, University of Michigan

TeraSim is a unified testing platform for autonomous vehicles (AVs), simulating realistic traffic, pedestrian behavior, and construction zones. It integrates with CARLA and offers 3D visualization via Unreal Engine 5.

Enhanced the TeraSim-CARLA co-simulation plugin by optimizing vehicle data and road information exchange. Developed a construction zone plugin enabling automated visualization and intelligent vehicle rerouting.

Ann Arbor, MI

05/2024-08/2024

Ablation Study on Tri-Perspective View on Plane Configurations [🔗 Code](#) [🔗 Report](#) [🔗 Poster](#)

Robotics, University of Michigan

- Conducted an ablation study on the Tri-Perspective View (TPV) for 3D semantic occupancy prediction on Panoptic nuScenes datasets. Achieved an 48% mIoU on semantic occupancy prediction task with two-plane setups, as compared to 40% in traditional TPV.
- Demonstrated that two-plane configurations are sufficient for effective visual-based occupancy prediction.

Ann Arbor, MI

10/2024-12/2024

ACTIVITIES

Member, Joint Institute Association (JIA), University of Michigan

12/2023-Present

Signed Contributor, Visual China Group, China

6/2023-Present

Department Director, Student Union, Shanghai Jiao Tong University

06/2022-08/2023

Assistant Manager, Student Innovation Center, Shanghai Jiao Tong University

03/2022-08/2022

SKILLS

Language: Mandarin (Native), English

Programming Languages: Python (Proficient), C++/C (Proficient), Matlab (Familiar)

Frameworks & Tools: PyTorch, TensorFlow, SUMO, Slurm