

# Xinhang (Owen) Ma

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## Education

### Washington University in St. Louis

M.S. Computer Science, GPA: 4.0

Thesis: Verifiable Safety for End-to-End Autonomous Driving

Advisor: Dr. [Yevgeniy Vorobeychik](#)

St. Louis, Missouri

01/2024 – present

### Washington University in St. Louis

B.S. Mathematics and Computer Science, GPA: 3.9/4.0

Minor Economics

St. Louis, Missouri

08/2020 – 12/2023

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## Projects

### Verifiable Safety for End-to-End Autonomous Driving

01/2024 – present

- Built a comprehensive framework for customizable deep reinforcement learning algorithms in CARLA simulator.
- Used generative models to verify the deep neural network controllers for autonomous driving.

### Privacy Wrapper for LLMs

01/2024 – present

- Finetuned and deployed models for personal identifiable information and protected health information for our startup business.
- Designed and trained Privacy Information Correlation Model for user-side privacy protection by masking categories of sensitive information that are highly correlated to protect user privacy more effectively and efficiently.

### Miniature City Vision-Based Autonomous Vehicle - Robotics

08/2023 – present

- Collected and annotated a dataset of more than 1000 images for training lane-detection models including LaneNet, Spatial CNN, and Ultra Fast Structure-aware Deep Lane Detection.
- Improved hardware designs and algorithmic details of the robotic vehicle to handle drivings during challenging conditions, such as roads where lane markings are sparse or missing [\[report\]](#) [\[code\]](#).
- Media coverage: [Washington University AV Mini-City](#).

### From Speech to Data: Unraveling Google's Use of Voice Data for User Profiling

10/2023 – 12/2023

- Conducted experiments using Google's smart home speakers in controlled environments to examine how Google might be using voice recordings for user profiling and advertisement targeting [\[paper\]](#) [\[code\]](#).
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## Experiences

### Washington University in St. Louis - CERL Lab

Member as Master Student; Member as Undergraduate Student

Supervisor: Dr. [Yevgeniy Vorobeychik](#)

St. Louis, Missouri

08/2023 – present

- Worked on autonomous driving projects including controls of a robotic vehicle in a miniature city and simulator-based controls for deep reinforcement learning-based agents.
- Worked on verification of neural network controllers for autonomous driving using generative models.

### WrapperAI

Startup Founding Member: AI/ML Technician

St. Louis, Missouri

01/2024 – present

- Designed and developed the technical workflow for the startup, including AWS services setups and model fine-tuning and deployments.

**TalkMeUp Inc.**

Pittsburgh, Pennsylvania

Machine Learning Research Intern; Software Engineer

05/2023 – 08/2023

- Worked on machine learning algorithms to improve performance on human facial expression understanding and speech tone recognition.
- Implemented SOC 2 (service organizations controls) modules for organization-level cybersecurity audits.

**Washington University in St. Louis**

St. Louis, Missouri

Tutor; Teaching Assistant

08/2022 – present

- Worked as tutor for undergraduate Computer Science major courses.
- Teaching assistant:
  - Spring 2024: CSE347 Analysis of Algorithms
  - Fall 2023: CSE442 Intro to Cryptography

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**Skills****Technical:** Python, PyTorch, JavaScript, L<sup>A</sup>T<sub>E</sub>X, Amazon Web Services, ROS(2), Java**Language:** English (professional proficiency: attended high school and college in the U.S.); Mandarin (native)