# Zhiling Chen

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## Education

- **University of Connecticut** — *Aug. 2023 - present*
  *Ph.D. student at ME, advised by Prof. Farhad Imani and Prof. Ruimin Chen* — Storrs, CT
- **Boston University** — *Sep. 2021 - Aug. 2022*
  *Master of Science in Applied Data Analytics* — Boston, MA
- **Waterford Institute of Technology** — *Sep. 2020 - June. 2021*
  *Bachelor of Science (Honours) in Software Engineering Practice* — Waterford, Ireland
- **Nanjing University of Information Science & Technology** — *Sep. 2017 - June. 2021*
  *Bachelor of Engineering in Software Engineering* — Nanjing, China

## Research Interests

My research focuses on the intersection of machine learning and smart manufacturing, with particular emphasis on Vision-Language Models and robotics, especially in the areas of cooperative robotics and embodied robotic systems.

## Publications Google Scholar

**[1]** Zhiling Chen*, Danny Hoang, Ruimin Chen, Farhad Imani. **Distributed Hyperdimensional Computing for Real-Time Data Aggregation and Interpretable Quality Monitoring in Manufacturing**. *IMECE 2024*.

**[2]** Zhiling Chen*, Danny Hoang, Fardin Jalil Piran, Ruimin Chen, Farhad Imani. **Federated Hyperdimensional Computing for Hierarchical and Distributed Quality Monitoring in Smart Manufacturing**. *Internet of Things*.

**[3]** Zhiling Chen*, Hanning Chen, Moshen Imani, Ruimin Chen, Farhad Imani. **Vision Language Model for Interpretable and Fine-grained Detection of Safety Compliance in Diverse Workplaces**. *Expert Systems with Applications*.

**[4]** Fardin Jalil Piran*, Zhiling Chen, Moshen Imani, Farhad Imani. **Privacy-preserving Federated Learning with Differentially Private Hyperdimensional Computing**. *Computers and Electrical Engineering*.

**[5]** Zhiling Chen*, Hanning Chen, Moshen Imani, Farhad Imani. **Can Multimodal Language Model be Guided to Improve Industrial Anomaly Detection?** *Arxiv [Under Review]*.

**[6]** Kiarash Naghavi Khanghah*, Zhiling Chen, Lela Romeo, Qian Yang, Rajiv Malhotra, Farhad Imani, Hongyi Xu. **Multimodal RAG-driven Anomaly Detection and Classification in Laser Powder Bed Fusion using Large Language Models**. *2025 DFMLC Best Paper Award*.

**[7]** Zhiling Chen*, Yang Zhang, Fardin Jalil Piran, Qianyu Zhou, Jiong Tang, Farhad Imani. **ScanBot: Towards Intelligent Surface Scanning in Embodied Robotic Systems**. *Arxiv [Under Review]*.

## Experience

- **UCONN ISCL Lab [🌐]** — *Aug. 2023 - Present*
  *Research Assistant* — Storrs, CT
  - Application of Vision-Language Models for Industrial Anomaly Detection
  - Collected and implemented VLA datasets using UR3 robot and laser profiler for robotic learning tasks.

## Teaching

- **TA at UCONN Manufacturing Automation (ME3221)** — Aug. 2024 – Dec. 2024
- **TA at UCONN Special Topics in MEM (ME3295)** — Jan. 2024 – May. 2024
- **TA at UCONN Manufacturing Automation (ME3221)** — Aug. 2023 – Dec. 2023

## Skills

- **Programming & Frameworks:** Python, Java, Javascript, R, HTML, Git, ROS2, PyTorch, TensorFlow
- **Robotics:** UR3 robot control, MoveIt, Isaac Sim
- **Databases & Tools:** MySQL, Oracle, Docker

## Additional Information

**Languages:** English (Proficiency level), Mandarin (Native Speaker)
**Interests:** Snowboarding, boxing, climbing