

Jiarui Li

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PROFESSIONAL SUMMARY

Graduate student in Electrical and Computer Engineering with industry experience in multimodal computer vision and embodied AI simulation. Proficient in Python, PyTorch, YOLOv8, SAM, MuJoCo, and Isaac Sim on Linux. Experience includes perception prototyping, vision-to-action validation, image classification, sonar sensing, and indoor AR navigation.

EDUCATION

University of Illinois Urbana-Champaign (UIUC)

MEng, Electrical & Computer Engineering

Expected Dec 2027

University of Liverpool | Liverpool, UK

BEng, Computer Science & Electronic Engineering | GPA: 3.98/4.0 | Ranking: Top 3

Sep 2024 - May 2026

Xi'an Jiaotong-Liverpool University | Suzhou, China

BEng, Computer Science & Technology | GPA: 3.8/4.0 | Ranking: Top 3%

Sep 2022 - Aug 2024

Honors: Dean's Award (Top 3 in major); Top 50 Excellence Award

Relevant Coursework: Instrumentation & Control, Signals & Systems, Computer Systems, Distributed Systems, Multi-Agent Systems, Neural Networks, C++ Application Development

TECHNICAL SKILLS

Programming & Systems: Python, C++, Java, JavaScript, SQL, Linux, Git, client-server systems, data visualization, debugging

Embodied AI & Simulation: Isaac Sim/Gym, MuJoCo, VLA/X-VLA, PPO, state estimation, sensor fusion, Arduino/PySerial, prototyping

Perception & System Integration: PyTorch, YOLOv8, SAM, TensorRT, system integration, simulation validation, dataset replay, trajectory analysis

EXPERIENCE

VisionX LLC

Software Engineering Intern

Remote

Jul 2026 - Aug 2026

- Deployed X-VLA locally on Linux to establish an end-to-end embodied AI simulation workflow for vision-guided cloth folding, covering multimodal observations, policy action outputs, cross-embodiment soft-prompt adaptation, runtime dependencies, and integration constraints.
- Implemented client-server inference and motion-trajectory visualization; ran training/evaluation on official demonstration data and compared predictions before and after training to verify the perception-to-action pipeline.
- Prototyped staged validation using MuJoCo visualization and baseline Isaac Sim cloth scenes; replayed dataset trajectories before model predictions to isolate data, action-mapping, cloth-physics, and simulator failure modes.
- Adapted company simulation code to resolve cloth rigidity/configuration issues, then packaged and handed off the reusable cloth component for continued folding-policy integration.

VIA Technologies, Inc.

Algorithm Engineer Intern - Computer Vision

Wuhan, China

Jun 2024 - Aug 2024

- Reproduced and fine-tuned YOLOv8, SAM, and Florence-v2 on proprietary factory/automotive data for seat-belt, helmet, and smoking detection.
- Improved small/occluded-target results through augmentation and confidence fusion, raising accuracy from 60% to 85% and mAP by about 12% over single-model baselines.
- Optimized PyTorch/TensorRT inference with fast pre-screening, increasing throughput from 3 to 10 FPS.
- Integrated model outputs with embedded safety-monitoring workflows and enabled rapid local updates on proprietary data.

SELECTED EMBODIED AI & SENSOR SYSTEMS PROJECTS

Sonar Radar Detection and Targeting System

Embedded Systems Course Project - University of Liverpool

Liverpool, UK

Feb 2025 - Apr 2025

- Integrated Arduino Uno, HC-SR04, servos, a motor driver, and a Python/PySerial polar dashboard; held inter-module communication error below 3%.
- Calibrated sensor response and interpolation to reduce position error from +/-4.8 to +/-2.3 cm; designed a Fusion 360 mount with alignment error below 1 degree.

PATHFINDER - Personalized AR Indoor Navigation

Final Year Project - University of Liverpool

Liverpool, UK

Sep 2025 - May 2026

- Architected two iOS applications, separating administrator-side route recording and graph management from end-user route retrieval and real-time indoor navigation.
- Implemented CoreMotion-based heading estimation and step detection to reconstruct walking trajectories; modeled routes as reusable nodes and edges for modular segment updates without re-recording the full environment.
- Integrated Firebase Firestore for cloud route and node management, ARKit overlays for real-time visual guidance, and QR-code initialization linking each user's starting location to predefined graph nodes.

PUBLICATIONS

- Heng Tang, Xiaoping Rui, **Jiarui Li**, Ninglei Ouyang, Yiheng Xie, Xiaodie Liu, and Yiming Bi. *SLIP-flood: Soft-combination of Swin Transformer and Lightweight Language-Image Pre-training for Flood Images Classification*. International Journal of Applied Earth Observation and Geoinformation, April 25, 2025.
- Yuzhuo Wang, **Jiarui Li**, Shishuo Chen, Sikai Ge, Shuihua Wang, and Chengyu Wang. *The Ten-Classification of Whole-body Parts from Infrared Thermal Images*. 2024 9th International Conference on Communication, Image and Signal Processing (CCISP), December 28, 2024.