Xiangjie Tang

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Research Interests

My research interests focuses on the intersection of intelligent systems and human-centered technologies, with a strong emphasis on **Internet of Things (IoT)**, **Human-Computer Interaction (HCI)**, **Edge AI**, and **Autonomous driving**. I am particularly interested in developing efficient, real-time, and user-aware computing solutions that leverage distributed intelligence at the network edge to enhance the performance and usability of smart environments and intelligent transportation systems.

Education

Southeast University Nanjing, CN

Bachelor of Engineering in Computer Science (Honor class) *Aug. 2022 – Jun. 2026 (expected)*

- Relevant Coursework: Fundamentals of Communication Electronic Circuits, Signal & Systems, Operating System, Computer System Ability Training, Computer Graphics
- Exchange Program: City University of Hong Kong, 2024

Research Experience

UbiquitousX Lab, *Hong Kong University of Science and Technology (HKUST)* Hong Kong, CN

Research Assistant (Advisor: Dr. Qijia Shao) *Jul. 2025 – Present*

- Designed a portable device that can contactless monitor the vital signs and action of human
- Optimized and deployed remote photoplethysmogram (rPPG) networks on edge device

AI-native IoT Lab, *Southeast University* Nanjing, CN

Research Assistant (Advisor: Dr. Shuai Wang) *Sep. 2023 – Jun. 2025*

- Configured the initial environment and parameters of multiple sensors, including low resolution infrared camera, mmWave radar, IMU, etc.
- Participated in a number of sensor-sensing related projects
- Analyzed the imaging characteristics of millimeter-wave radar for stationary objects under moving conditions

Other Experience

Formula Racing Team, *Southeast University* Nanjing, CN

Vehicle Control Algorithm Engineer *Sep. 2022 – Present*

- Debugged and deployed all the sensors of the entire vehicle, including the IMU, oil pressure sensor, etc.
- Built the communication network of the whole vehicle through CAN including 10+ nodes
- Designed and experimented a four-wheel independent steering driving and control system
- Developed an ESP32 dashboard for real-time telemetry monitoring

Projects

mmWave Radar and Low Resolution IR Sensor Fusion for Human Parsing *Mar. 2025 – Jun. 2025*

- Poposed a novel mmWave radar and low-resolution infrared fusion human semantic segmentation system, which uses infrared heatmap features to complement mmWave point cloud information to enhance environmental robustness
- Established a multi-modal feature fusion scheme based on two parallel NLN networks to effectively fuse the features of two modalities
- Collected 400,000 frames of radar-infrared datasets

Target Liveness Detection via Mmwave Radar and Vision Fusion *Sep. 2023 – May 2024*

- Explored the point cloud characteristics of mmWave radar at different moving speeds and different parameter settings
- Developed a trihedral reflector-based calibration algorithm to stabilize RCS measurements on commercial mmWave radar, enabling RCS extraction for targets
- Designed an attention-based model to fuse radar RCS with visual posture data, improving accuracy for targets

A Torque Distribution Control for Four-Wheel Independent-drive Vehicles *Oct. 2022 – Oct. 2024*

- Designed a vehicle state estimation algorithm using Cubature Kalman Filter combining multiple sensors, including IMU, Wheel speed sensor, etc.
- Developed a torque distribution algorithm for Four-Wheel Independent-drive Vehicles using Linear Quadratic Regulator (LQR)
- Experimented the entire electronic control system on real racing car for over 20 hours and recorded real vehicle sensor data for the subsequent RNN model development

Publications

- **MIRaSeg: Exploring mmWave Radar and Low Resolution Infrared Sensor Fusion for Robust Human Semantic Segmentation.** *Xiangjie Tang*, Ruili Shi, Shuai Wang, Zeyu Zhang, et al. *Chinese Conference on Pattern Recognition and Computer Vision (PRCV) 2025 (to appear).*

Honors & Awards

- **Third Prize**, National Formula Student Electric China (FSEC) *2023, 2024*
- **Outstanding Award for Cultural Quality Education Practice**, Southeast University *2024*
- **Outstanding Award for Social Work**, Southeast University *2024*

Services

- **President of the Student Union**: Organized and carried out 100+ university-level events
- **Member of Young Volunteers Association**: 100+ hours of voluntary services

Skills

Coding Skills: C/C++, Python, Simulink, Embedded programming, Matlab
Hardware Skills: mmWave radar, STM32, ESP32, Low resolutin IR, IMU, CAN Bus Communication
Language: Chinese, English (CET6: 550), Japanese