WANG, LEXIN

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EDUCATIONAL BACKGROUND

Nanjing University of Information Science and Technology **Sep. 2021-Jun. 2025**

- **Bachelor of Engineering** in *Robotics Engineering*
- ***GPA:*** 3.524/5.0; **Average Score:** 86.3/100
- **Language Proficiency:** English- Fluent (TOEFL iBT **107**); Chinese- Native (Certificate of Putonghua Proficiency Test - Level II, Grade A)
- **Certificate & Qualifications:** National Computer Rank Examination-Level II (C Language); Position Competency Assessment Certificate of Industry and Information Technology Talents

The University of Manchester — MSc Robotics **Sep. 2025-Present**

- **Current focus: autonomous driving & mobile robotics; perception, localization, planning, and control.**

KEY TECHNICAL SKILLS

- **C/C++ (multithreading), Python · OpenCV (thresholding/morphology/HOG) · SSD-MobileNet-V1 (lightweight deployment)**
- **ROS/ROS1 · SLAM: gmapping / AMCL · Local planning: TEB · PID closed loop; sensor fusion (IMU/LiDAR/Encoder)**
- **MATLAB/Simulink (control & simulation) · Keil/STM32 (embedded & circuitry) · SolidWorks/AutoCAD (mechanical design)**

ACADEMIC PROJECTS

Development and Design of an Intelligent Transport Handcart Based on Autonomous Following and Obstacle Avoidance Technology **Apr. 2023- Apr. 2024**

Team Leader

- Planned the project process comprehensively, allocated team members' responsibilities rationally, promoted internal communication within the team, and enhanced leadership and management skills
- Designed the mechanical structure and circuit system of the handcart and used efficient algorithms and embedded system technology to ensure the stability and reliability of the handcart
- **Wrote the control algorithm with multi-sensor fusion control, PID control algorithm, etc., and used MATLAB, Keil uVision, and SolidWorks for algorithm simulation, microcontroller programming, and 3D modelling to realize the autonomous following and obstacle avoidance function of the** handcart

The 18th National College Student Intelligent Automobile Competition **Nov. 2022-Aug. 2023**

Team Leader of the Full Model Group

Achievement: Second Prize in the National Final & First Prize at the Provincial-level in the East China Region

- Designed and planned a deep learning-based autonomous navigation and task execution system for smart vehicles to simulate smart vehicle operations in smart agriculture scenarios
- Adopted modular design to write software code for hardware underlying driver, application-level algorithmic logic, and pseudo threads logic allocation
- Developed traditional vision patrolling algorithms based on **C++** and **OpenCV**, introduced multi-threads parallel processing technology, and improved the computing efficiency and task execution speed of the host computer
- **Employed SSD-MobileNet-v1 deep learning target detection algorithm and optimized the model to reduce the amount of input data and improve prediction speed and accuracy**
- **Realized PID control algorithms for precise control of vehicle speed and direction to ensure vehicle stability and responsiveness in different track environments and tasks**

The 17th National College Student Intelligent Automobile Competition **Aug. 2022-Dec. 2022**

Team Leader of the Outdoor ROS Unmanned Car Racing Group

Achievement: First Prize in the National Final

- Studied and developed ROS-based multi-sensor fusion vision unmanned system control to realize autonomous navigation and obstacle avoidance functions of intelligent driving racing vehicles by integrating sensors such as monocular camera, laser radar, IMU and encoder
- Used **OpenCV**'s color feature detection, gmapping method, amcl positioning algorithm and teb local path planner and other advanced technologies, combined with the ROS operating system for system integration
- Optimized the algorithms to improve the stability and real-time performance of the intelligent driving system, and debugged the system parameters to ensure the stable operation and fast response of the intelligent vehicle

- Achieved autonomous tracking and mapping of intelligent vehicles in the first round, and utilized the global map for optimal path planning and fast sprinting in the second round, and demonstrated the actual effect of the project

The 17th National College Student Intelligent Automobile Competition **Nov. 2021-Aug. 2022**

Participant of the Full Model Group

Achievement: Second Prize at the Provincial-level in the East China Region

- Carried out detailed mechanical design for the car model, including 3D modeling and simulation using **Solidworks**, and made targeted optimization and adjustment for the problems that may occur during the driving process
- Designed hardware circuits such as USB2.0-HUB circuit, USB to UART communication circuit, etc., selected suitable chips and modules to build the circuit, and conducted the layout, wiring, simulation and testing of it
- Developed the identification procedure based on **C++** and **Python**, used **OpenCV** for image processing, **Paddle Lite** for AI model training and recognition, and implemented PID control algorithms for closed-loop control of steering engine and motor speed
- Integrated the mechanical structure, hardware circuitry and software algorithms to form a complete intelligent vehicle system, tested and adjusted many times on the simulated track, and completed the race task accurately

The First Jiangsu Province College Intelligent Robot Creative Competition **May. 2022-Jul. 2022**

Participant

Achievement: Third Prize at the Provincial-level

- Took charge of the mechanical structure design of intelligent robots and worked closely with team members to solve technical problems encountered during the design and production process
- Used **AutoCAD** and **SolidWorks** for mechanical structure design, engaged in the design and programming of electronic control system with **Keil** and **Arduino IDE**, used **MATLAB**, **Simulink** and other software for algorithm simulation and optimization, achieved the robot's motion control and sensor data acquisition

The 13th Lanqiao Cup National Software&Information Technology Professional Talent Competition **May. 2022**

Participant of the C/C++Programming College Student Group, Jiangsu Division (Individual)

Achievement: Second Prize at the Provincial-level

- Used the **C/C++** to solve a range of programming problems by combining knowledge of data structures and algorithms such as sorting, searching, and dynamic programming
- Utilized integrated development environments such as **Dev-C++** and **Visual Studio** for code writing and debugging

The 12th Jiangsu University Student Robotics Competition **Sep. 2021- Nov. 2021**

Team Leader of the Autonomous Vehicle (Multi Vehicle Interaction) Group

Achievement: Third Prize at the Provincial-level

- Led a team to design and build an unmanned vehicle system with autonomous navigation, obstacle avoidance, overtaking and meeting functions
- Selected appropriate methods, such as machine vision-based environment sensing, autonomous navigation based on path planning, and multi-vehicle interaction based on communication protocols, software, including **MATLAB**, **SolidWorks**, **Arduino**, and **ROS**, and devices, and integrated resources

■ EXTRACURRICULAR ACTIVITIES

The Class Committee of *Robotics Engineering* Major, NUIST **Oct2021- Jun. 2025**

Class Commissary in Charge of Studies

- Set up multiple subject study groups according to students' learning needs, and organized regular study exchange meetings and problem-solving seminars, resulting in a **15%** increase in the average grade of study group members
- Organized and planned large-scale academic activities, such as the final review mobilization meeting, promoted academic exchanges and cooperation, and honed organizational skills

■ AWARDS

- Outstanding Communist Youth League Member of NUIST in 2023 — May. 2024
- *Outstanding Student Cadre of* NUIST — Dec. 2022 & Dec. 2023
- *Triple-A Student of NUIST* — Dec. 2022 & Dec. 2023
- *Second-class Scholarship of NUIST* — Dec. 2022 & Nov. 2023