LINXUAN(LUCIEN) JIA

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EDUCATION

University of Pennsylvania, School of Engineering and Applied Science, Philadelphia, PA — Aug. 2023 – May. 2025
Master of Science in Engineering: Mechanical Engineering and Applied Mechanics
Relevant Coursework: Design of Mechatronic Systems, Introduction to Robotics, Machine Learning, Artificial Intelligence

Tongji University, School of Automotive Studies, Shanghai, China — Sept. 2018 – July. 2023
Bachelor of Engineering in Vehicle Engineering | GPA: 88.8 /100
Merit Scholarship, Shanghai Outstanding Graduate
Key Courses: Theory of Machines and Mechanisms, Electrical and Electronic Technology, Fundamentals of Vehicle Engineering Control, Automotive Sensors, Embedded System Design, Fundamentals of Intelligence Driving, The Technology of Environment-aware and V2X

TECHNICAL SKILLS

Skills: Mechanical Design, Finite Element Analysis, PCB Design, (Embedded) Programming, ML, DL, RL, Algorithms
Programming Languages: C, C++, CSS, Python, MATLAB
Software: Autodesk Inventor, SolidWorks, MATLAB, Simulink, Proteus, Altium Designer, Carsim, Hypermesh, Keil, Tasking, DAvE, Qt
Fabrication: CNC Milling, Welding, Laser Cutting, Wire Cutting, 3D Printing
Other Tools: Ubuntu, ROS, OpenCV, Docker, PyTorch, TensorFlow, CAN

EXPERIENCE

Aorui Automotive Parts (Shanghai) Co., Ltd, Mechanical Engineer Intern, Shanghai, China — July. 2022 - Sept. 2022

- 3D interactable modeling (using **SolidWorks**) of the cabin part of specific car model according to the requirements.
- Analyzing the properties of the interior parts through finite element simulation experiments (using **Hypermesh**).
- Participated in the **mechanical and electronic circuit design** portion of the digital upgrade program for production equipment.

PROJECTS

Four-Wheel Independent Steering and Driving Vehicle (4WISD-V) with Redundant Steering System — Apr. 2020 – Mar. 2021
A special vehicle whose wheels can independently rotate 360°

- Designed mechanical construction of the 4WISD-V and optimized the dynamic performance by simulation experiments (**Inventor**).
- Developed a coupling **control algorithm** for multi-wheel coordination and embedded it in a microcontroller (**STM32F2**).
- **Manufactured** and **assembled** the main parts of the vehicle by **CNC turning and milling** and **3D printing**.

HydraFusion: Context Aware Selective Sensor Fusion for Robust Autonomous Vehicle Perception — June 2022 – Sept 2022
A DNN for multi-sensor fusion (Cooperate with Mohammad Al Faruque @UCI)

- Designed the gate module for adaptively assigning weights to sensors, achieving a **3%** improvement in accuracy in detection task.
- On average, HydraFusion outperforms early and late fusion approaches by 13.66% and 14.54%, respectively.

Full Process Simulation of Automatic Driving Based on Carla Linux (Python, C, C++) — Sept. 2022 – Feb. 2023
An autonomous driving simulation of the perception-planning-decision-control pipeline.

- Built a virtual scene using **Python API** in the **Ubuntu** System and control the server side using client scripts.
- Implemented the following algorithms: (for perception) **YOLOv5**, **LaneNet**; (for planning) **Hybrid A***, **Fast RRT**; (for decision) **Reinforcement Learning** (observable Markov decision); (for control) **fuzzy PID**, **MPC**
- Implemented the automatic driving between any given starting and ending points by setting up the pipeline using **ROS** nodes.

Interpolation and Prediction of Lidar Point Cloud Data — Dec. 2022 – June 2023
A DNN for lidar point cloud data interpolation (Cooperate with Guang Chen @Tongji University)

- Proposed a novel neural network structure for point cloud frame interpolation, trained on the open-source dataset NuScene and improved the interpolation accuracy by about 20% over current SOTA methods.

LEADERSHIP/ EXTRACURRICULAR ACTIVITIES /VOLUNTEER/COMMUNITY SERVICE

Student Union of Tongji University, President, Shanghai, China — Feb 2020-Feb 2021

- Represented and advocated for students, addressed concerns from students/professors; Launched massive student events including student academic conferences and art festivals; Led engagement with communities and fostered positive relationships.

PUBLICATIONS

- Hu Cao, Boyang Peng, **Linxuan Jia**, Bin Li, et al., Orientation-aware People Detection and Counting Method based on Overhead Fisheye Camera. Accepted by 2022 IEEE International Conference on Multisensor Fusion and Integration (IEEE MFI 2022)
- Jing Hou, **Linxuan Jia**, Guang Chen, et al., Learning under Sparse Action: Interval-Decision Reinforcement Learning for High-Density Parking Spatial Scheduling. Submitted to IEEE Transactions on Artificial Intelligence (IEEE TAI)