Xiaoyi Lin

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EDUCATION

New York University *May 2024*
Master of Science in Computer Engineering
Relevant coursework: Applied Matrix Theory, Deep Learning, Foundations of Robotics, Operating Systems

Tongji University *Jul.2022*
Bachelor of Science in Mechanical Engineering | Minor: Artificial Intelligence
Relevant coursework: C/C++ Programming, Database, Data Structure and Algorithm, Machine Learning

TECHNICAL SKILLS

Programming Language & Framework. C++, Python, Java, Linux, TensorFlow, PyTorch, OpenCV, ROS
Software & Tools Shell, Docker, CMake, AUTOSAR, scikit-learn, Git, OpenVSLAM

INTERNSHIP EXPERIENCE

Amazon Global Robotics (C++) *May 2023-Aug. 2023*
Manipulation SDE Intern (C++) | Motion Planning, Manipulation, AR
Project: Machine Learning Based Geometric Primitive Collision Checking Method
- Adopted and implemented an up-to-date machine learning-based algorithm for collision detection using **C++**.
- Effectively integrated the algorithm with motion planning code base; reduced **5.4%** overall computational expenses for each planning, improving collision checking run-time from **~1ms** to **~100ns**.
- Developed test strategy and conducted simulations on the Nvidia PhysX platform and AWS S3.

Volkswagen (Python, C++) *Jan.2022-April 2022*
R&D Intern | Predevelopment, Development and Research Dept.
Project: Intelligent Cockpit Development (Highest fund awarded - $600,000)
- Improved a machine learning-based driver fitness determination system using **Python**. Resolved the overfitting problem by decreasing the sensitivity of **RNN**, reducing the error rate of blinking detection by **12%**;
- Adopted **CI/CD** to deploy the system onto the flagship model VW Tiguan using **C++** and **AUTOSAR**;

RELATED RESEARCH EXPERIENCE

Perception/Mapping/Localization Research and Development for Self-Driving *Sept, 2022-Present*
Supervised by Prof. Chen Feng | NYU Self-Drive, New York University
- Leveraged perception for auto lane-changing project using **RGBD** camera and **LiDAR**;
- Optimized a redundant mapping process by utilizing **openVSLAM** system, kept its robustness on Colmap but reduced offline processing time and supported more features than the current ORB filter;.

3D Image Reconstruction Based on Optical Flow-deep Neural Network *May 2021-August 2022*
Supervised by Dr. J. Zheng | University of Oxford
- Constructed an artificial neural network by **PyTorch**; completed the fusion of optical flow, depth and semantic information; implemented moving average method to optimize the framework;
- Completed the high-quality reconstruction of three-dimensional images.
- Article: A Compacted Structure for Cross-domain learning on Monocular Depth and Flow Estimation

Automatic Venipuncture Robot Design Based on Deep Learning *May 2020-Sept. 2021*
Supervised by Prof. Peng Qi | Tongji University
- Designed the compact supporting unit, positioning unit, puncturing unit, and imaging unit;
- Designed a semi-supervised method for vein segmentation - Semi-ResNeXt-Unet, which can determine the depth of a vein in ultrasound images and hence navigate the puncture of VeniBot;
- Collected ultrasound images of 400 patients, including 100 manually labeled patients and 300 unlabeled patients, to validate the semi-ResNeXt-Unet network.

LEADERSHIP

- Academic and Social Activity Scholarships awarded by Tongji University for two contiguous academic years
- Student Council Vice-President in Mechanical and Energy Engineering School