Chu-Lin (Jimmy) Huang

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Graduated in December 2024. Looking for a full-time robotics / computer vision / software engineer position

Education

University of Illinois Urbana-Champaign Aug. 2023 - Dec. 2024
Master of Engineering in Autonomy and Robotics *Urbana, IL*

National Cheng Kung University Sep. 2015 - Jan. 2020
Bachelor of Science in Mechanical Engineering *Tainan, Taiwan*

Technical Skills

Languages & Tools: Python, C++, Golang, CUDA, PyTorch, TensorFlow, OpenCV, Open3D, ROS, Docker, Git, Linux, GCP, AWS, .NET Framework, SolidWorks
Skills: Tracking, Segmentation, Detection, SLAM, Localization, Sensor Fusion, 3D Reconstruction
Sensors: Lidar, IMU, GPS, Stereo Camera, Monocular Camera

Projects

Deployed SLAM on Autonomous Vehicle Feb. 2024 - May 2024
- Collaborated with 5+ teams and implemented **Multi-Object Tracking** with **YOLOv8** and **Kalman Filter**
- Developed **SLAM** using **Visual Inertial Odometry** and benchmarked it against **GNSS** and **IMU** ground truth
- Calibrated **LiDAR-camera** extrinsics using the **PnP** method, then applied **DBSCAN** to cluster the 3D point cloud and achieved an **IoU of 0.68**

Lane Detection System on F1 Tenth Car Jan. 2024 - Apr. 2024
- Designed **Path Tracking**, **lane detection**, and **collision avoidance algorithm** using **YOLOv8**, executed on the **NVIDIA Jetson** platform
- Validated controller logic in **Gazebo** simulation, integrated perception and control components with **ROS**
- Calibrated cameras for distortion issues through **OpenCV** and **Python**

CNNs Based on CUDA Oct. 2023 - Dec. 2023
- Deployed a **CUDA-based convolutional neural network** with **C++** to optimize **parallel programming** and **memory management**, achieving 87% accuracy on GPU hardware
- Accelerated convolutional operation time **from 100ms to below 40ms** for a batch size of 5000 using tiled shared memory convolution and loop unrolling techniques
- Leveraging **Nsight Systems** and **Nsight Compute** for performance profiling and fine-tuning

Particle Filter Localization based on ROS with Lidar Simulation Sep. 2023 - Oct. 2023
- Engineered a **LiDAR** processing module and localized robots using **Particle Filter Localization**
- Conducted simulations on **ROS** and **Gazebo** platforms to iteratively refine and validate the localization process

Work Experience

University of Illinois Urbana-Champaign May 2024 - Oct. 2024
Graduate Researcher *Urbana, IL*
- Achieved **data augmentation** optimization on **Feasible Path Estimation** and improved performance up to 8% by integrating a **segmentation model** with a path feasibility estimation framework, using **Python** and **PyTorch**
- Applied **data screening** techniques to filter data for training input and reduce mislabeled samples by 15%
- Created a training dataset for segmentation model fine-tuning using image data augmentation techniques

Pegatron Mar. 2021 - Jul. 2023
Automation Testing Engineer *Taipei, Taiwan*
- Implemented **antenna** testing function using **Python** to achieve product test yield above 99%
- Reduced factory operator error rate by 50% through fail-safe mechanical design with **SolidWorks** and improved code maintainability by 30% via optimizing test programs following **OOP** principles
- Leveraged **Tableau** to analyze and visualize testing data, reduced manual analysis time by 30% and elevated decision-making efficiency
- Utilized **Jira** and **Confluence** to manage projects, track issues and maintain documentation, ensuring on-time delivery and team alignment