

Renyun Li

☎ 929-599-8356 ✉ li5329@purdue.edu 🔗 [linkedin.com/in/RenyunLi](https://www.linkedin.com/in/RenyunLi) 💻 renyunli0116.github.io

Education

Purdue University

Aug. 2024 – May. 2028

PhD student in ECE Focusing on 3D Vision, 3D Point Cloud

New York University

Sep. 2021 – May. 2023

MS in ECE Focusing on 3D Point Cloud Segmentation and Compression

Tianjin University

Sep. 2016 – May. 2020

BS in EECS Focusing on SLAM, Robotics, DL, Optics

Technical Skills

Languages: Python, C++

Field: CV, 3D Vision, SLAM, ROS, Embedded System, DSP

Tools: Linux, PyTorch, HPC, AWS, Unreal, OpenACC, FFmpeg

Experience

Purdue University

Aug. 2024 – Present

Research Assistant

- Working on a video-based pipeline for mask segmentation, re-identification, and confidence-driven tracklet refinement.
- Working on Vision Language Model for space reasoning, reconstruction, and VLA.

fAIshion

Feb. 2024 – Aug. 2024

Co-Founder

- Took charge of AI and part of the backend development task. Worked on Diffusion Model for virtual try-on catering to diverse body types, ages, and races, and designed the web and Chrome extension.
- Requested the user to upload images to pre-reconstruct the mesh by 3DGS. This allowed right-clicking the listed brand's model for instant try-ons and size recommendations based on the diffusion model and volume estimation.

Chinese Institute for Brain Research

May 2024 – Jul. 2024

Machine Learning Engineer

- Developed a neural speech decoding framework using DL and differentiable speech synthesis for natural-sounding speech, achieved PCC of 0.8 with ResNet and Swin Transformer models for ECoG-based speech decoding.

New York University

June 2023 – May 2024

Deep Learning Researcher

- Designed a PointNet-based model with a dynamic kernel and multiple frames as input, and infused with motion estimation for 3D point cloud segmentation, paving the way for the compression of 3D video based on this.
- Created 3D point cloud augmentation algorithm, performed Human part segmentation on the dataset generated from 4D FAUST with 97% acc, generalized to unknown subjects and actions with loose-fitting clothes and intricate hair.
- Refine the seg result with motion estimation in a GOP. Through dynamic splitting and merging, got each voxel prediction, and then compressed the whole video by Huffman Coding.

Georgia Institute of Technology

Feb. 2024 – May 2024

Researcher Intern

- Proposed NeRF-guided Dataset Distillation (NeRD) to maximize informational uniqueness with data-efficient NeRF pipelines and data-NeRF co-design methods. Conducted empirical validation demonstrating NeRD's effectiveness in enhancing the balance between compression and rendering quality.
- Aishani Singh*, Jason Zhang*, **Renyun Li***, Yonggan Fu, Yingyan (Celine) Lin. Condensing 3D Datasets for Enhanced Data Efficiency in 3D Reconstruction, ISCA Workshop, 2024

Shanghai Qizhi Institute

June 2021 – Sep. 2021

Deep Learning Research Intern

- Generated a virtual environment based on ROS, Webots Turtlebot3, and Gazebo, and trained a robot car to explore the environment without collision using RL, while also reconstructing the map using Lidar-SLAM.

NXP Semiconductors

Jan. 2021 – June 2021

Software Engineer Intern

- Engaged in AIoT, TinyML, Visual-SLAM on Embedded Systems with software-hardware co-design.
- Optimizing the extraction and matching algorithm of ORB-SLAM, leveraged the NXP LS1028 development board's memory hierarchy for efficient multicore utilization and minimized memory allocations through parallelization. This allowed for the efficient reconstruction of 3D point clouds of the environment by a monocular camera and ROS.

Honors and Awards

- 2 papers in IEEE/SCI, 5 patents, 33 honors or awards during undergraduate as Outstanding Graduate (top 5%)
- Student Science Award (The youngest candidate of 10 students in all undergraduate, MS and PhD)
- Special Prize of Chinese National Undergrad Challenge Cup (top 1%), 2019 [Poster](#)
- First Prize of China Undergraduate Physics Tournament (ranking 5/63), 2018 [News](#)