Ang Li

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EDUCATION

Stanford University
M.S. Computer Science, specialized in Artificial Intelligence *Sep 2023 – Apr 2025*

University of California, San Diego
B.S. Computer Science, graduated with High Honors *Aug 2019 – Dec 2022*

PUBLICATION

1. Chao Xu, **Ang Li**, Linghao Chen, Yulin Liu, Ruoxi Shi, Minghua Liu, Hao Su. *SpaRP: Fast 3D Object Reconstruction and Pose Estimation from Sparse Views.* Accepted to European Conference on Computer Vision (ECCV 2024). [arXiv]

2. Xiaoshuai Zhang, Rui Chen, **Ang Li**, Fanbo Xiang, Yuzhe Qin, Jiayuan Gu, Zhan Ling, Minghua Liu, Peiyu Zeng, Songfang Han, Zhiao Huang, Tongzhou Mu, Jing Xu, Hao Su. *Close the Optical Sensing Domain Gap by Physics-Grounded Active Stereo Sensor Simulation.* Accepted to IEEE Transactions on Robotics (T-RO 2023). [arXiv]

WORK EXPERIENCE

Robot Simulation Engineer, Hillbot *Jan 2025 – Present*
- Led the design and optimization of the rendering system for a high-fidelity simulation platform, supporting both rasterization and ray tracing pipelines with tile-based GPU optimization in Vulkan.
- Designed and implemented a physically based material system, including diffuse/specular IBL, GGX BRDF/BTDF with material layering, and multi-scattering energy compensation.
- Designed and implemented a Blender-compatible node-based shading system, enabling flexible material authoring and seamless reuse of Blender workflows.
- Implemented rasterization shaders for Gaussian Splatting, integrating point-based neural scene representations into the real-time rendering pipeline.

Research Intern, Hillbot *Jul 2024 – Sep 2024*
- Maintained and extended a simulation pipeline for active stereo depth sensors, supporting realistic depth and infrared signal generation.
- Optimized Vulkan-based rasterization pipelines to improve GPU efficiency and real-time rendering performance.
- Implemented rendering system features including multiview rendering, geometry instancing, shadow catchers, reflection probes, and tone mapping.

RESEARCH EXPERIENCE

3D Object Reconstruction and Pose Estimation from Sparse Views *Stanford*
Advisor: Prof. Hao Su *2024*
- Developed an optimization pipeline that enhances the accuracy of coarse predicted camera poses by leveraging the generated 3D mesh.
- Significantly outperformed baseline methods in 3D reconstruction quality and pose estimation accuracy with our proposed SpaRP method for sparse-view image inputs.

Active Stereo Vision Depth Sensor Simulation *UC San Diego*
Advisor: Prof. Hao Su *2022*
- Designed and implemented a CUDA-based library to simulate the stereo matching module of real-world depth sensors, enhancing computational efficiency.
- Achieved superior runtime and transfer performance compared to other sim-to-real methods with our proposed depth sensor simulation pipeline.

Closed-Loop Control for Mechanical Ventilation *UC San Diego*
Advisor: Prof. Ryan Kastner *2021*
- Led the development of a closed-loop control circuit for a cost-effective mechanical ventilator prototype, optimizing system reliability.
- Implemented a PID controller for Pressure Control Ventilation on Arduino chips.

Selected Projects

SAPIEN | [Project]
- SAPIEN is an open-source and physics-rich simulation platform for robotics and embodied AI, led by Hillbot.

SimSense | [GitHub]
- SimSense is a GPU-accelerated depth sensor simulator for python based on stereo matching.

Teaching

CSE 152A: Introduction to Computer Vision   *UC San Diego*
Instructional Assistant   *Sep 2022 – Dec 2022*
- The course covers image formation, reconstruction, classification, recognition, deep learning.

Technical Skills

Programming Languages: Python, C/C++, Rust, GLSL, CUDA
Frameworks and Libraries: NumPy, PyTorch, OpenGL, Vulkan
Development Tools: Git, Docker, Kubernetes, Blender
Domain Knowledge: Computer Vision, Computer Graphics, Robotics, Deep Learning, Reinforcement Learning, Physics