

Ankit Kumar Shaw

M.Sc. Graduate | Robotics & AI Enthusiast

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Summary

Graduate student researching Embodied AI with a focus on Autonomous Driving, Haptic shared Robot Learning, and Multimodal LLMs. Passionate about building context-aware robotic agents that collaborate with humans through language and touch to solve complex manipulation tasks.

Education

School of Vehicle and Mobility, Tsinghua University

Sep 2020 - Dec 2024

Mechanical Engineering

Master of Science

3.87/4.0, Rank: 5th

Thesis: "**Multimodal LLM based Data Cleansing Model for Confidence Score driven Crowdsourced Data Fusion**" under Dr. Yang Diange in Autonomous Driving Lab.

[NB: Almost 2 years of study gap due Covid-19]

Vellore Institute of Technology

Jul 2016 - Jun 2020

Mechanical Engineering

Bachelor of Technology

8.78/10.0

Thesis: "**Investigation into the effects of Waste Plastic Oil in Biogas fuelled Dual-Fuel Engine**" under Dr. M. Feroskhan.

Experience

National University of Singapore

Mar 2025 - Present

Research Assistant

Visuo-Tactile based Robot Learning and Manipulation under Prof. Mike Shou at Show Lab in the School of Computing.

King Abdullah University of Science and Technology

Jun 2022 - Dec 2022

Remote Intern as well as Visiting Student

Saudi Arabia

Learned to implement simple Offline Reinforcement Learning models in different Mujoco Environment under Prof. Mohamed Elhoseiny at Vision-CAIR group in Visual Computing Center.

Tsinghua AI for Student Club (TAIS)

2023 - 2024

President

Tsinghua University

Actively participate in AI hackathons, debates, and global collaborations with university and industry teams in China, fostering a vibrant AI community through talks and panel discussions.

Future Robotics Club

2022 - 2024

Team Member

Tsinghua University

Design and develop the "Tinker" home-based indoor robot for RoboCup @home.

Conference Reviewer

IROS 2025, Hangzhou, China.

Research Interests	Embodied AI, Visuo-Tactile based Robot Learning and Dexterous Manipulation, Human-Robot Interaction (HRI), Multimodal Sensing and Robot Perception, Multimodal Large Language Models, Vision Language Action Models, Scene Understanding in Autonomous Driving	
Research Projects and Publications	CleanMAP: Distilling Multimodal LLMs for Confidence-Driven Crowdsourced HD Map Updates	Feb 2024 - Dec 2024
	<p>A. K. Shaw, K. Jiang, T. Wen, C. K. Sah, Y. Shi, M. Yang, D. Yang, and X. Lian, "CleanMAP: Distilling Multimodal LLMs for Confidence-Driven Crowdsourced HD Map Updates," <i>arXiv preprint arXiv:2504.10738</i>, 2025. [Online]. Available: https://arxiv.org/abs/2504.10738.</p> <p>Accepted at the CVPR 2025 Workshop on Distillation of Foundation Models for Autonomous Driving (WDFM-AD).</p> <p>Advancing Autonomous Vehicle Intelligence: Deep Learning and MLLM for Traffic Sign Recognition and Robust Lane Detection Feb 2024 - Jan 2025</p> <p>C. K. Sah, A. K. Shaw, X. Lian, A. S. Baig, T. Wen, K. Jiang, M. Yang, and D. Yang, "Advancing Autonomous Vehicle Intelligence: Deep Learning and Multimodal LLM for Traffic Sign Recognition and Robust Lane Detection," <i>arXiv preprint arXiv:2503.06313</i>, 2025. [Online]. Available: https://arxiv.org/abs/2503.06313</p> <p>Joint first author – Contributed to the development of a multimodal large language model (MLLM) for robust understanding of road elements, including lane detection under adverse conditions.</p> <p>Under review at ICCV 2025.</p> <p>ViTaMin: Learning Contact-Rich Tasks Through Robot Free Visuotactile Manipulation Interface Aug 2024 - Jan 2025</p> <p>F. Liu, C. Li, Y. Qin, A. Shaw, J. Xu, P. Abbeel, and R. Chen, "ViTaMin: Learning Contact-Rich Tasks Through Robot-Free Visuo-Tactile Manipulation Interface," <i>arXiv preprint arXiv:2504.06156</i>, 2025. [Online]. Available: https://arxiv.org/abs/2504.06156.</p> <p>Joint second author – Contributed equally to the design and implementation of the multimodal fusion-driven diffusion model.</p> <p>Submitted to CoRL 2025.</p> <p>Done in collaboration with UC Berkeley.</p> <p>Stereo Camera based Object detection at different depths and performing Pick and Place Task at specific Bin using the 7 DoF Robotic Arm Sep 2023 - Jan 2024</p> <p>Machine Vision course final project</p> <p>A Privacy-Preserving Data Storage and Service Framework Based on Deep Learning and Blockchain for Construction Workers' Wearable IoT Sensors. 2022</p> <p>X. Zhou, A. K. Shaw, and P.-C. Liao, "A privacy-preserving data storage and service framework based on deep learning and blockchain for construction workers' wearable IoT sensors," <i>arXiv preprint arXiv:2211.10713</i>, 2022. [Online]. Available: https://arxiv.org/abs/2211.10713.</p> <p>Published in IEEE Access.</p>	

Skills	Programming & Frameworks: Python, C++, PyTorch, CUDA, TensorFlow, OpenCV	
	Robotics Tools: ROS, Gazebo, MoveIt, RViz	
	Collaboration & Development: Git, Docker, Linux, Jupyter, VS Code, Github	
	AI & ML Tools: Deep Learning, Imitation Learning, LLM, VLM, VLA	
	Additional Tools: Open3D, Scikit-learn, Matplotlib, NumPy, Pandas	
Achievements	Best Solution Award	2022
	AWS Disaster Response Hackathon	
	Second Class Meritorious Scholarship (英才二等奖学 金)	Oct 2021
	Tsinghua University	
	Awarded for having excellent overall academic records	
	Chinese Government Scholarship	Sep 2020 - Jun 2024
	Tsinghua University	
	Fully Funded Master's Study Scholarship	
Languages	English	● ● ● ● ●
	Hindi	● ● ● ● ○
	Chinese	● ● ○ ○ ○