Yixuan Yang

Duke University
Department of Electrical and Computer Engineering

Duke
UNIVERSITY

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🔗 www.yixuanyang.com

EDUCATION

- **Duke University**   *GPA: 3.94/4.0 (Up to date)*   *Durham, NC, United States*
  08/2024 - 08/2025: Ph.D. Student in Robotics and AI (Academic Advisor: Prof. Boyuan Chen 🔗)
  09/2025 - 05/2026 (Expected): M.S. Student (Machine Learning & Big Data Track; Transitioned from Ph.D. Program)
- **Southern University of Science and Technology (SUSTech)**   *08/2020 - 06/2024*   *Shenzhen, China*
  B.E. in Computer Science and Technology, Academic Advisor: Prof. Xin Yao 🔗   GPA: 3.53/4.0
    - Distinguished Graduate of Computer Science, Class of 2024 (top 1%, 2 out of 245 students)
    - Guo Xie Bi Rong Fellowship (¥10000) (top 4%); SUSTech Outstanding Graduate of the Class of 2024
- **Tsinghua University (Tsinghua Univ. - UC Berkeley Research Institute)**   *05/2023 - 06/2024*   *Shenzhen, China*
  Research Internship in Prof. Xinlei Chen's 🔗 Lab
- **University of California, Berkeley (UCB)**   *08/2022 - 01/2023*   *Berkeley, United States*
  Exchange Student (Got a Letter of Recommendation from Dr. Igor Mordatch 🔗)   GPA: 4.0/4.0
- **National University of Singapore (NUS)**   *05/2022 - 08/2022*   *Singapore*
  Summer Workshop 2022, School of Computing   2D Game Development

RESEARCH PUBLICATIONS

- **Contact-Rich Manipulation Driven by Humanoid Robot (In Progress)**   *08/2024 - 03/2025*
  Duke University - General Robotics Lab   ***Advised by Prof. Boyuan Chen 🔗***
    - Designed and built a manipulation toolkit playboard for humanoid robots. Developed a humanoid manipulation development (training and policy rollout) environment powered by Nvidia Isaac Gym. Utilized traditional heuristic-based methods and Deep RL to enable the Unitree G1 to achieve robust performance in contact-rich manipulation tasks.

- **GasHunter: Empowering Efficient Gas Source Localization by Collaborative Robots**   *05/2023 - 06/2024*
  Tsinghua University (Tsinghua Univ. - UC Berkeley Research Institute)   ***Advised by Prof. Xinlei Chen 🔗***
  Accepted: Hotmobile 24' 🔗; Under Peer Review Process: ToSN (arXiv:2411.06121 🔗)
    - Designed *GasHunter*, a collaborative multi-robot system for gas source localization in patchy plume environments. Combined Langevin-inspired planning with dynamic multi-agent scheduling to balance exploration and exploitation.
    - Achieved 20%+ higher success rate and 30%+ path efficiency over SOTA baselines in both simulation and real-world testbed.

- **Machine Learning-Based Problem Reduction for Large-Scale UFLP Optimization**   *01/2023 - 06/2024*
  Southern University of Science and Technology   ***Advised by Prof. Xin Yao 🔗***
  Accepted: IEEE CEC 2024 🔗
    - Developed a learning-based framework for large-scale UFLP optimization by transferring knowledge from smaller instances.
    - Proposed the *Local Adjacent Vector (LAV)* strategy, reducing instance size by up to 86.8% with <1% solution quality loss. Achieved significant acceleration and improved convergence across four benchmark meta-heuristics.

SELECTED PROJECTS (more details at **www.yixuanyang.com** 🔗)

- **SparseInfer: Fast and Sparse Inference Framework for LLMs (ECE 689 Project)** 🔗   *01/2025 - 04/2025*
    - Developed a sparse inference framework for LLMs that selects core neurons via semantic stability, enabling zero-cost decoding and $10.33\times$ speedup. Validated on 5 models and 6 NLP tasks with minimal accuracy loss and reduced GPU memory usage.

- **Unsolvable Robotic Task Detection Using Synthetic Data Driven By LLM (LLaVA)** 🔗   *09/2024 - 12/2024*
    - Built a vision-language system to detect unsolvable robotic tasks using LLaVA-1.5-7B and synthetic task generation. Achieved 78.1% and 81.0% rejection rates on SD and Habitat-Sim benchmarks, improving robot reasoning in edge cases.

- **Text-to-Image Generation with Conditional VAEs and CLIP Embeddings** 🔗   *09/2024 - 12/2024*
    - Developed a two-stage CVAE-based text-to-image generation pipeline combining CLIP text embeddings with latent variable modeling; implemented and trained the long-text model on MS-COCO for generating images from descriptive captions.

- **Bug resolved in Ryu SDN Framework; implemented a network with routing and DHCP.**   *03/2023 - 06/2023*
- **Built a MOBA game in Unity; only project in NUS workshop to support networked PVP.**   *05/2022 - 08/2022*

COURSES TAKEN AT DUKE

- ECE 689 - Advanced Topics in Deep Learning: **A+**.
- COMPSCI 527 - Computer Vision: **A**.
- ECE 682 / STA 561 - Probabilistic ML: **A**.
- ECE 685 - Introduction to Deep Learning: **A-**.
- ECE 590 - Robot Learning: **A**.

TECHNICAL SKILLS

Python, Pytorch, Cursor, Claude Code, Isaac Gym/Genesis, Robot Control, CAD, CNC cutting, 3D printing, Linux, Git, C/C++, Java, LaTeX, Raspberry Pi Development, UGV System, UWB Localization System, SQL, Computer Network, etc.