

EDUCATION

- Duke University** 08/2024 – Present Durham, United States
Ph.D. in Electrical and Computer Engineering, Advisor: Prof. Rishi Kamaleswaran GPA: 3.96/4.0
- Southern University of Science and Technology (SUSTech)** 08/2020 – 06/2024 Shenzhen, China
B.E. in Computer Science, Academic Advisor: Prof. Xin Yao (Fellow, IEEE) GPA: 3.53/4.0
- Distinguished Graduate, Department of Computer Science (Top 1%, 2 out of 245 students)
 - Guo Xie Bi Rong Fellowship (Top 4%); SUSTech Outstanding Undergraduate Alumnus, Class of 2024
- University of California, Berkeley (UCB)** 08/2022 – 01/2023 Berkeley, United States
Exchange Undergraduate Student GPA: 4.0/4.0

RESEARCH INTEREST

World Model, Instruction Tuning & Reasoning-Enhanced LLM, Representation Learning, Foundation Models for EHR, ML for Combinatorial Optimization, Evolutionary Algorithms, Humanoid Robot Manipulation, Multi-Agent Systems.

RESEARCH EXPERIENCES

- Instruction Tuning Foundational Model for Trajectory Modeling & Reasoning** 08/2025 – Present
Duke University – Kamaleswaran Lab *Advised by Prof. Rishi Kamaleswaran*
- Developed reasoning-enhanced, instruction-tuned Large Language Models to model acute illness trajectories and automate clinical planning from Electronic Health Record (EHR) data. Built a framework that transforms longitudinal patient data into real-time actionable insights for clinical decision support.
- Automated Lab: Scientific Lab Manipulation driven by Humanoid Robot** 08/2024 – 03/2025
Duke University – General Robotics Lab *Advised by Prof. Boyuan Chen*
- Engineered a high-fidelity sim-to-real learning platform and physical manipulation toolkit for the Unitree G1 humanoid robot to automate complex tasks in scientific laboratory environments.
 - Developed a robust manipulation framework in Nvidia Isaac Gym utilizing a hybrid approach of Deep Reinforcement Learning (PPO) and traditional heuristics to enable precise, contact-rich control.
- GasHunter: Empowering Efficient Gas Source Localization by Collaborative Robots** 05/2023 – 06/2024
Tsinghua University - UC Berkeley Institute (Visiting Research) *Advised by Prof. Xinlei Chen*
- Proposed *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 (Fellow, IEEE)*
- Proposed a ML-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.

PUBLICATIONS

- Yuhan Cheng*, Xuecheng Chen*, **Yixuan Yang**, Haoyang Wang, Jingao Xu, Chaopeng Hong, Susu Xu, Xiaoping Zhang, Yunhao Liu, and Xinlei Chen. **SniffySquad: Patchiness-Aware Gas Source Localization with Multi-Robot Collaboration**. *ACM Transactions on Sensor Networks*, Jan 2026. DOI: 10.1145/3786599.
- Yuhan Cheng*, Xuecheng Chen*, **Yixuan Yang**, Haoyang Wang, Yuxuan Liu, and Xinlei Chen. **Poster: Olfactory Sensing in Turbulent Airflow via Collaborative Robots**. In *Proceedings of the 25th International Workshop on Mobile Computing Systems and Applications (ACM HotMobile)*, 2024.
- Shuaixiang Zhang, **Yixuan Yang**, Hao Tong, and Xin Yao. **Learning-Based Problem Reduction for Large-Scale Uncapacitated Facility Location Problems**. In *IEEE Congress on Evolutionary Computation (CEC)*, 2024.

ACADEMIC SERVICE & TECHNICAL SKILLS

- Government Service:** Student Researcher in North Carolina AI Leadership Council (Tech, Data, & Infra team) - hosted by the NC Office of AI and Policy to support government agencies in AI-related decision-making.
- Teaching Assistant:** DECISION 520Q/618: Data Science for Business, Duke Fuqua School of Business (08/2024 – 10/2024).
- Reviewer:** ACL Rolling Review (ARR, 2026); ICLR 2026 Workshop on Foundation Models for Science (FM4Science, 2026); IEEE J-STSP (Intelligent Robotics SI, 2023).
- Programming:** Python, JavaScript, React, C/C++, Java, SQL, L^AT_EX
- Frameworks & Tools:** PyTorch, Hugging Face Ecosystem, CUDA, MIMIC-IV / EHR Databases, Nvidia Isaac Gym/Genesis, Git, Linux, Raspberry Pi, Arduino, Fusion 360, UWB Systems