JIAHE XU

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5844 Northumberland ST, Pittsburgh, PA 15217

EDUCATION

M.S, Robotics **GPA:3.8/4.0 Aug 2020 - May 2022**
Johns Hopkins University, Baltimore, MD
B.S, Computer Science **GPA:3.6/4.0 Sep 2016 - Jun 2020**
Jilin University, Changchun, China

PUBLICATION

- **Jiahe Xu**, Hellen Wang, Gang Tan. *OC3D: Object Centric 3D Diffuser.* (Submitted to ICRA2026)
- Nikolaos Gkanatsios, **Jiahe Xu**, Matthew Bronars, Arsalan Mousavian, Tsung-Wei Ke, and Katerina Fragkiadaki. *3D FlowMatch Actor: Unified 3D Policy for Single- and Dual-Arm Manipulation.* arXiv preprint arXiv:2508.11002, 2025. (Submitted to ICRA2026)
- Guanqi He, Xiaofeng Guo, Luyi Tang, Yuanhang Zhang, Mohammadreza Mousaei, **Jiahe Xu**, Junyi Geng, Sebastian Scherer, and Guanya Shi. *Flying Hand: End-Effector-Centric Framework for Versatile Aerial Manipulation Teleoperation and Policy Learning.* arXiv preprint arXiv:2504.10334, 2025.
- Xiaofeng Guo, Guanqi He, **Jiahe Xu**, Mohammadreza Mousaei, Junyi Geng, Sebastian Scherer, and Guanya Shi. *Flying Calligrapher: Contact-Aware Motion and Force Planning and Control for Aerial Manipulation.* IEEE Robotics and Automation Letters, 9(12):11194–11201, 2024.

WORK EXPERIENCE

CTO - PinocchioAI **Januray 2025 - now**
Start-Up company China, Beijing

- **Leader of the robot system(Hardware and Software), App(WeChat mini-program), and servers.**
- **Deployed the company's first-generation navigation robot in a national-level scenic area.**
- **Fine-tuned LLM for tourist guidance purposes and increased humor level.**
- **Use collected data for real-to-sim improvement for RL algorithms.**
- **Implement a hand tracking and retargeting system on VisionPro for robot control in Isaac Gym.**
- **Implement a real2sim pipeline for object-centric methods (Image to mesh, mesh rescaling, and rigid body object tracking).**
- **Developed a crypto-trading automation system with 40%+ monthly ROI (details on website).**

Research Assistant - Carnegie Mellon University **June 2024 - June 2025**
(with Prof. Katerina Fragkiadaki and with Prof. Tsung-Wei Ke), CMU, Pittsburgh, PA

- **Train and evaluate different VLA models (SPOT, AnyPlace, iDP3, 3DDA, 3DFA, Pi0, etc).**
- **Implemented real-time multi-camera streaming and depth estimation for data collection.**
- **Built a data collection assistant language control pipeline using OpenWakeWord, SileroVad, Whisper, Deepseek, and Kokoro-tts.**
- **Delivered real-time end-effector controller of Aloha robot from scratch (up to 50Hz using numerical methods)**
- **Large-scale datasets comparison (RH20T, Open X-Embodiment, BridgeData)**
- **System calibration narrowed forward kinematics error from 3cm to 1cm within.**

System Engineer - Carnegie Mellon University **Oct 2022 - May 2025**
Air Lab, CMU, Pittsburgh, PA

- **Integrated lab's systems into Jetson platforms and improved the code's efficiency with VPI, tensorRT. Increased inference speed by 60%.**
- **Thermal camera and FOV camera calibration: improved Kalibr's corner detection method and mitigated the reprojection error from 2.5 pixels into 1 pixel.**
- **Calibration and time sync on sensors: Stereo, Depth Camera, Gimbal, LIDAR, IMU.**
- **Deployed VLMs on a real robot for robot decision-making and injury assessment.**
- **Use iPhone and VisionPro as sensor packs (convert ARKit and Raw Camera output to ROS2 messages in embedded devices).**
- **High-level system architecture designer of DARPA DTC challenge of CMU CHIRON team.**
- **Video streaming and acceleration on Doodle Radio (DDS acceleration and video encoding using Gstreamer Pipeline and Nvidia NVMEM and encoders)**

PROFESSIONAL SKILLS

- **Proficiency in C, C++, Python, Matlab.**
- **Experience with Pytorch, ROS1/ROS2, TensorRT, Ceres, Eigen, VPI, Gstreamer, Docker.**
- **Embedded Computer Platforms I worked with: Jetson Orin/Xavier, NUC, iOS(iPhone & VisionPro).**
- **Robot Platforms I used: Boston Dynamics Spot, Custom RC Car, Custom Quadrotors, Franka Panda, Mobile Aloha, UR5.**
- **Sensors I am familiar with: Pinhole, Fisheye, Stereo, Thermal cameras, IMU, 2D/3D Lidar, Radar**
- **Simulation Environments I used: PyBullet, Sapien, IsaacGym/IsaacLab, Mujoco, and Genesis**

AWARDS

Medal winner in International Collegiate Programming Contest (ICPC), an international programming contest.

- **The 2017 ACM-ICPC Asia Regional Contest Silver Medal.**
- **The 2016 ACM-ICPC Asia Regional Contest Bronze Medal.**