

Qixuan (Keeron) Huang

✉ qhuang336@gatech.edu | 🐙 GitHub | 🔗 LinkedIn | 🎓 Google Scholar

EDUCATION

- Georgia Institute of Technology** (Expected) May 2028
- *Master of Science in Robotics (ECE Home School)*
- University of Illinois Urbana-Champaign** Jun. 2026
- *Bachelor of Science in Computer Engineering, with honors; Dean's List, Spring 2025*
- Zhejiang University** Jun. 2026
- *Bachelor of Engineering in Electrical and Computer Engineering, GPA: 4.00/4.3*
 - **Second-Prize Scholarship** (2023, Top 8%) and **Third-Prize Scholarship** (2024, Top 22%)

RESEARCH EXPERIENCE

- RecoverTwin: Train-Free Failure Recovery for Dual-Arm Manipulation** Nov. 2025 – May 2026
Senior Thesis | Advisor: Liangjing Yang
- Developed a train-free recovery supervisor for frozen dual-arm policies in SAPIEN, detecting stalled grasp attempts and combining Florence-2 localization, GraspNet 6-DoF grasp proposals, and inverse-kinematics execution before returning control to the base policy.
 - Evaluated ACT across 14 task-scene conditions and RDT-1B across 2 on RoboTwin 2.0, using 100 paired seeds per condition. Increased randomized-scene success from **9% to 28%** on bottle shaking (ACT) and **17% to 30%** on hammering (RDT-1B).
 - Conducted a recovery ablation on randomized bottle shaking (ACT), finding a **17%** advantage for full regrasp recovery over retreat-only recovery; analyzed detector false positives and task structure to characterize recovery limits.
- Human-Centered Autonomy Lab** May 2025 – Sept. 2025
Undergraduate Research Assistant | Advisor: Katie Driggs-Campbell
- Experimented a behavior-tree prototype for recovering from failed ACT rollouts in RoboTwin 2.0 without restarting tasks. Identified state-synchronization issues in checkpoint rollback and task-specific scripting requirements in preset recovery actions, informing the design of RecoverTwin.
- CVNext Lab** Jun. 2023 – Sept. 2024
Undergraduate Research Assistant | Advisor: Gaoang Wang
- Independently built data pipelines for **CityCraft-OSM** and **CityCraft-OSM-Satellite**, producing over 100,000 paired map and satellite-image patches through automated data acquisition, coordinate conversion, and geographic matching.
 - Automated Blender orthographic rendering and contributed to image post-processing for CityGen, refining object boundaries and correcting class-label colors for multiscale training data.
- Co-author* **CityGen** (CVPR 2025 Workshops, USM3D) | **CityCraft** (arXiv, 2024).
- Ultrafast Photonics Laboratory** Jun. 2023 – Aug. 2023
Undergraduate Research Assistant | Advisor: Chaoyuan Jin
- Co-created a quantum-inspired Python Boids simulator that models phase-dependent interactions and distance attenuation to study flock foraging and predator evasion.
 - Compared five coupling strengths using approximately 1,000 simulations per setting. The final variant reduced mean foraging time by **7.5%** relative to Boids without added coupling.

PROJECTS

- Dual-Arm Robotic Rubik's Cube Solver** Jan. 2026 – May 2026
- Led a four-person senior design team and constructed a MuJoCo model with 27 cubies and four actuators to simulate gripper clamping and whole-cube reorientation.
 - Converted Kociemba move sequences into clamp, release, and layer-turn commands while tracking cube orientation to access all six faces. Verified consistent logical cube-state tracking across 1,000 random simulated face turns.
 - Designed a Python serial bridge that converts simulation primitives into Arduino motor commands and waits for completion acknowledgments. Demonstrated a complete cube solve on the physical prototype.
- HyperGemini: Autonomous Parallel Parking** Jan. 2025 – May 2025
- Implemented a ROS parallel-parking controller that reverses the GEM e2 through a preset sequence of right steering, wheel straightening, and left steering.
 - Collaborated on LiDAR obstacle checks and RViz navigation to the parking start pose. Successfully parked in 4 of 5 physical trials within a 3 m × 5.3 m space.