Jixin (Kevin) Yan

JixinYan2029@u.northwestern.edu | jixinyan.github.io | github.com/jixinyan

Education

Northwestern University Evanston, IL

B.S. in Computer Science, McCormick School of Engineering; GPA: 3.9/4.0 *Sep 2025 – Expected June 2028*

- Relevant Coursework: Data Structures and Algorithms; Computer Systems; Operating Systems; Scalable Software Architectures; Machine Learning; Deep Learning

Experience

Litchi AI @ Tsinghua Spatial Intelligence Lab | ***Research Intern*** Jun 2026 – Present

- Co-developed RoboDoctor, a training-free recursive self-improvement system for robot policies; built the agent harness for action-chunk testing/repair, grounded verification, and experience-memory reuse.
- Automated manipulation-video subtask segmentation and reasoning/verification annotation for vision-language-action (VLA) fine-tuning; built a VLM benchmark for planning, tracking, and progress monitoring.
- Implemented closed-loop Code-as-Policies for Franka/Sharpa powder weighing, coordinating manipulation sequences and recovery from execution errors.

IDEAS Lab, Northwestern | ***Research Assistant, Prof. Qi Zhu*** Jan – Jun 2026

- Authored AI2-THOR/OmniGibson scenes for specification-grounded robot-safety evaluation; built a collaborative migration application using BEHAVIOR-1K assets; co-authored ManiGuard.
- Collected simulated Franka demonstrations for GR00T/π0.5 fine-tuning; integrated OmniSafe FOCOPS, PPO-Lag, and CPO into safe-RL training/evaluation workflows.

Integrative AI Lab, Northwestern | ***Research Assistant, Prof. Naichen Shi*** Jan – Sep 2026

- Built Grounded-SAM2/LabelMe annotation for 150 X-ray trajectories ($\sim$75k frames) and four pore states; trained CVAE sensor models and implemented shared-state multi-sensor fusion.
- Tuned photodiode posterior inference with Optuna, improving AUC from 0.683 to 0.765 on 5,010 validation frames; co-authored Generative Bayesian Filtering for State Estimation.

Selected Projects

Embodied DeepSeek Harness Jun 2026 – Present

- Independently built a robot-agent framework on DeepSeek Harness: Planner executes/retries, Verifier assesses outcomes, and Evolver extracts experience for recursive self-improvement (RSI).
- Integrated VLA/Code-as-Policies/GPT-as-Policy with ActionGate checks; implemented independent role contexts, source-linked SKILL retrieval, on-demand section reading, and context compaction.
- Validated native RoboDojo/Pi0.5 retry with independent verdicts; project benchmarks: VLN-CE success rate +10 percentage points over InternVLN and SOTA success rates on multiple RoboDojo tasks.

Oh My Duck Aug 2026 – Present

- Independently built Microduck simulation/training with MuJoCo-Warp, Isaac Lab/Newton, and RSL-RL/SB3 PPO; exposed sensing/motion tools and integrated Qwen3-ASR/TTS voice interaction.
- Validated official-policy control in 15 motion cases across three simulated scenes: $\leq$5 cm position error, $\leq5^\circ$ angle error, upright stopping, zero obstacle contacts; verified real-device audio interruption.

OpenSO-101 Apr 2026 – Present

- Independently unified teleoperation, dual-camera datasets, Isaac Lab PPO/distillation, and LeRobot ACT/Diffusion training/deployment; demonstrated both imitation policies on a physical SO-101.
- Built an Agent-driven RGB-video scene-generation prototype using Objaverse; a simulation-video-generated scene passed four-environment, 100-reset, 200-step runtime checks.

Publications and Honors

- Co-author of three publications: **RoboDoctor** (project page, 2026), **ManiGuard** (arXiv:2608.17386), and **Generative Bayesian Filtering for State Estimation** (arXiv:2607.20521).
- Northwestern Academic Year Research Grant; Summer Undergraduate Research Grant, 2026.
- Fletcher URG Prize Nomination, 2026.

Technical Skills

Languages: Python, C/C++, MATLAB, TypeScript/JavaScript
AI/Robotics: PyTorch, ROS2, Isaac Lab/Sim, MuJoCo, LeRobot, RSL-RL, Stable-Baselines3, OmniGibson, Hugging Face
Systems & Tools: Linux, Git, Docker, CUDA, vLLM
Databases & Cloud: PostgreSQL, MySQL, AWS, Azure, Firebase