

Shaurya Sen

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EDUCATION

Cornell University

Ithaca, NY

Bachelor of Science in Computer Science

Expected Graduation: May 2028

Relevant Coursework: Deep Learning for Robotics (graduate), Reinforcement Learning, Robot Learning, Deep Learning, Algorithms, Computer System Organization, Data Structures & Algorithms (Honors)

RESEARCH EXPERIENCE

Undergraduate Researcher

May 2026 – Present

Cornell University, Sarah Dean Lab

Ithaca, NY

- Extended InfiniteDiffusion to 4D to generate unbounded, physically consistent global wind fields as RL training environments for stratospheric balloon navigation.
- Built a differentiable JAX balloon simulator to quantify how wind-forecast error limits control, toward publication.
- Designed a 12-metric fidelity benchmark (spatial, temporal, physical, balloon drift) against ERA5 reanalysis; achieved 2.5× finer effective resolution than Google's Balloon Learning Environment.

Robotics Software Research Intern

July 2022 – June 2024

West Point Robotics Research Center

West Point, NY

- Co-authored and presented a SPIE 2023 paper interfacing Monterey Phoenix behavior models with the MOOS-IvP autonomy stack to auto-generate simulated robot behaviors.
- Built a C++ MOOS-IvP pipeline streaming USV video through YOLOv5 to geolocate persons overboard.
- Trained USV capture-the-flag agents with DQN in simulation and deployed the policies sim-to-real on physical USVs on the water at the International Aquaticus Competition.

PROJECTS

Hexapod Locomotion | *Isaac Lab, PhysX* | github.com/ShauryaSen/hexapod-locomotion

Sep 2026 – Present

- Cut hexapod simulation time 4.5× and GPU memory 63% (73→27 GB) by replacing 153 mesh colliders with 19 auto-fitted primitives, with no change in trained-policy behavior.
- Trained a locomotion policy via DAgger from a scripted gait, then PPO over a terrain curriculum; deploying sim-to-real on the physical hexapod.
- Benchmarking when to adapt online (always-on, scheduled, or triggered) under payload, motor, and friction shifts.

Autonomous Drone Racing | *Flightmare, C++, PPO* | github.com/ShauryaSen/flightmare-vm

Spring 2026

- Built an RL stack on Flightmare's C++ quadrotor simulator: racing environment, procedural track generator, and PPO training/evaluation pipeline.
- Compared hand-designed, adaptive-procedural, and no curricula: hand-designed tracks maximized target-track performance; adaptive tracks generalized best to unseen layouts.

INDUSTRY EXPERIENCE

Software Engineering Intern

Summers 2024, 2025

Bloomberg

New York, NY

- Systems & Chaos Engineering, Summer 2025:* Built Faultline, Rust/eBPF kernel programs that hook syscalls, sockets, and packets to inject real-time network faults for Bloomberg's chaos-engineering platform.
- AI & Search Infrastructure, Summer 2024:* Improved FAQ recommendation accuracy with new feedback data.

TECHNICAL SKILLS

Languages & Frameworks: Python, C++, Rust, C, JAX, PyTorch

Simulation & Robotics: Isaac Lab, PhysX, Flightmare, MOOS-IvP, differentiable simulation (JAX), GPU-parallel RL

Machine Learning: PPO, DQN, DAgger, AMP, diffusion models, MPC, YOLOv5, OpenCV

Systems & Tools: eBPF, Linux, Git, Docker, Slurm; TypeScript/React, SQL