

AARSH MITTAL

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EDUCATION

University of Illinois at Urbana-Champaign (UIUC), Urbana, IL

Bachelor of Science in Computer Science + Philosophy

Minors: Data Science, Statistics

Certification: Ethics of AI (in progress)

GPA: 3.94/4.00

Expected May 2028

Relevant Coursework:

Applied LLMs

Linear Algebra

Calculus III (IP)

Ethics of Artificial Intelligence

Data Structures and Algorithms

TECHNICAL SKILLS

Robotics & Simulation: MuJoCo, Mjlab, NVIDIA GEAR-SONIC, Decoupled WBC, LeRobot, PedroPathing, Stereo Calibration

Programming Languages & Frameworks: C++, Rust, Python (PyTorch, NumPy, OpenCV, Pandas, Matplotlib), Typescript, React

Developer Tools & Hardware: Bazel, AWS (EC2/S3), Docker, Linux (Ubuntu), Git/GitHub CI/CD, Embedded (NVIDIA Orin, Raspberry Pi)

WORK EXPERIENCE

Lightberry (YC F25 Human-Robot Interaction Startup), San Francisco, CA

Apr 2026 – Present

Robotics Intern

- Architected zero-shot pipeline from generative HY-Motion models to Unitree G1 hardware; automated SMPL-X retargeting, cross-axis matrix alignment, and bi-directional Blender-to-MuJoCo synchronization
- Trained custom 29-DOF position-based locomotion policies (PPO) in Mjlab; modified NVIDIA GEAR-SONIC to inject generative waypoints, enabling state-driven humanoid loco-manipulation w/position-based control
- Ported code C++ simulation logic to rust (via mujoco-rs) within Bazel-managed build system; deployed AWS x86 cloud compute to parallelize motion synthesis and validation
- Developed concurrent keyboard whole-body-control (WBC) teleoperation tool (<40 ms latency); authored Rust/OpenCV stereo calibration tool w/36h11 AprilTags (<2 pixel mean reprojection error); built Linux Wi-Fi QR provisioning system via ZBar in Rust

MechSE MakerWorks, UIUC, Urbana, IL

Aug 2025 – May 2026

Tech Engineer

- Built custom check-in system for 75+ users using Supabase, React and TypeScript; designed 5+ Cloudflare-routed RESTful APIs and near real-time analytics dashboard (<10 ms latency), reducing check-in time by 80% and false sign-ups by 70%

EXTRACURRICULAR ACTIVITIES & LEADERSHIP

Rodriguez-Lopez Laboratory, UIUC, Urbana, IL

Mar 2026 - Present

Research Assistant

- Engineering custom conveyor-belt platform to continuously feed laser-cut chips w/auto-alignment for electrochemical testing
- Developing closed-loop control system using OpenCV and Raspberry Pi camera for real-time positioning verification during runs

Nuclear Measurement Laboratory, UIUC, Urbana, IL

Feb 2026 – Present

NEUP-DOE REU Fellow

- Built PyTorch 1D U-Net using custom composite loss w/background spectra; explained 92% of INS signal variance
- Expanded gamma spectroscopy data (16 to 256 samples) via Poisson noise-based data augmentation for model generalization

SIGRobotics, UIUC, Urbana, IL

Sep 2025 - Present

Robot Arms Team Lead / Project Co-Lead

- Led development of bimanual manipulation testbed using Robotis OMX arms, Intel RealSense Camera, and Raspberry Pi; authored four Jupyter notebooks teaching FK/IK, PID & basic camera concepts (calibration, april tag detection, etc.) to 9 students
- CAD-designed 10+ parts, deployed NVIDIA Orin Nano edge inference, implemented leader-follow teleoperation via Meta Quest 3, co-developed two bimanual pip packages for bimanual support

Robotics Engineer

- Co-developed Python SDK for EarthRover Mini+, built API translating keyboard teleoperation commands into low-level control

Illini Solar Car, UIUC, Urbana, IL

Sep 2025 - May 2026

Software Developer

- Constructed FastAPI backend for QuestDB to manage real-time data ingestion & host predictive models for race strategy analysis