Ojasva Mishra

Z Fellow | CMU SCS Researcher | SWE & AI/ML Systems | Quantitative Research Analyst | Robotics & Autonomy
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EDUCATION

University of Florida, Gainesville, FL
Bachelor of Science in Computer Engineering; dual major in Finance
Graduation Date: May 04, 2029
YC Startup School 2026 | Downingtown STEM Academy, IB Diploma | SAT 1590, National Merit Commended

EXPERIENCE

Drift (backed by Antler) November 2025 to Present
AI/Software Engineer (Founding Team) San Francisco, CA
- Built core infrastructure for a **robotics AI coding workspace used by 1,000+ users** to configure, run, and debug simulations across ROS2, Gazebo, MuJoCo, and Isaac Sim; shipped regression CI and contributed to Drift Desktop (Tauri, React).
- Shipped **World Labs photo-to-3D scene generation**, a license-verified **129-robot catalog** (MuJoCo Menagerie), and autonomous OpenClaw + pexpect CLI evals with vision-model screenshot analysis; traced a production Gazebo freeze to gz-transport UDP multicast on Ubuntu 24.04 and fixed it.

Carnegie Mellon University, Xu Lab July 2025 to Present
Research Intern Pittsburgh, PA
- **First author on three robotics and control papers** with Prof. Min Xu and Dr. Xiaolong Wu covering actuator-aware control optimization, conformal adversarial safety filtering, and secure feedback control for torque-limited robots.
- Validated algorithms on a **Franka Emika Panda**; built multimodal SLAM, path planning, and constrained control experiments from perception to actuation.

Twinly Incorporated December 2025 to Present
Co-Founder and CEO San Francisco, CA
- Built Twinly, which models a user's writing, speech, and computer behavior to create **digital clones** that handle work across hundreds of parallel instances; selected for **Z Fellows' 10-builder cohort**, with mentorship from founders of **Netflix, Eventbrite, and Tinder**.
- Shipped production **macOS, Windows, and iOS apps** serving **1,000+ active users, including paying customers**; built the Identity Runtime, composing macOS accessibility APIs, browser DOM and app state, and multimodal vision into one execution graph, with persistent memory.

AlgoGators Investment Fund September 2026 to Present
Quantitative Research Analyst Gainesville, FL
- Selected as **1 of 2 first-year students** for the quantitative research team at a **~$500K AUM** student-run fund; build systematic signals, backtests, and trading strategies.
- Executed a **crack spread strategy with a 64% win rate across live trades**; adjusted positions as hurricane forecasts changed during an active storm.

EV Bots, Inc. April 2025 to February 2026
AI Robotics Engineer Intern Chester Springs, PA
- Built the company's **first functional autonomous EV-charging robot prototype** across mechanical design, electronics, perception and control, and closed-loop vehicle connection; designed an autonomous drone-charging dock. Work contributed to multiple provisional patents.

PteroLabs July 2025 to January 2026
Engineering Intern (UAV Simulation and Autonomy) Remote, United States
- Built a **mission-grade Unreal Engine 5 UAV simulator** with PX4, ArduPilot, and Betaflight SITL, 6-DOF flight dynamics, FPV, ML mission planning, and object detection; used by the **University of Pennsylvania** for active research; performance-benchmarked the simulator.

iPipeline June 2025 to August 2025
Software Development Intern Exton, PA
- Shipped **enterprise software infrastructure**: automated test frameworks, AI agents, and developer tooling adopted across engineering teams for validation and regression workflows (Python, JavaScript, Docker, Git).

RESEARCH AND PUBLICATIONS

- **First author:** Constraint-Aware Discrete-Time PID Gain Optimization for Robotic Joint Control Under Actuator Saturation. **IEEE T-RO**.
- **First author:** Bounding Detector-Accepted Feedback Authority in Torque-Limited Robot Control. **IEEE ICRA 2027**.
- **First author:** SCIG++: Risk-Limiting Conformal Safety Filtering for Attack-Resilient Robotic Joint Control Under Saturation. **IEEE/RSJ IROS 2026** (video).
- Introduction to Robotics and Programming, a 120-page open-access textbook published through FusionBots and indexed on SSRN.

PROJECTS AND COMPETITIONS

Courtside | Gator Quant Hacks 2026, Systematic Trading track | Paper | GitHub | Video October 2026
- Causal computer-vision ball tracker that calls the point before the bounce: on held-out table tennis, a median 162 ms early, none wrong, at 119.9 fps.
- Latency-arbitrage study of 13,084 Polymarket ATP/WTA markets: wallets trading within 3 s of a point earned after fees in all 11 months, as a pre-registered hypothesis predicted out of sample; Markov fair value, deflated Sharpe, block bootstrap. Paper trading only.

Déjà View | SwampHacks XII, **1st** AI/ML track and **1st** DeepSpace track | Live | GitHub | Video | Devpost October 2026
- Turns photos or video of any space, real or in-game, into a 3D world you walk into on Meta Quest (WebXR), in a browser, or in Roblox.
- COLMAP camera solve, then a ~1M-Gaussian splat trained on UF HiPerGator in 11 min; VLM and depth gap fill; 240 Hz VR-Roblox cross-play physics.

Kinetix (NexHacks): AI physical-therapy coach; MediaPipe pose tracking scores joint angles, counts reps, and voice-coaches on Meta Quest (Next.js, LiveKit).

HIVE (YC Transpose, **1st** place): computer vision turns a physical workspace into task graphs that coordinate the people in it (PyTorch, React).

FUSE (Bitrig Hacks iPhone Duo Edition, Y Combinator): native iOS app; fold the iPhone Duo to fuse both screens into one AI result (Swift, RevenueCat).

GlassBoxAI (Startup in a Weekend Philly, **2nd** of 200+): Zoom/Google Meet overlay flagging AI-assisted interview answers via eye tracking and voice analysis.

Apps: PreventaAI (App Store, 5.0; SwiftUI, Firebase); Eyesight (LiDAR + on-device CoreML obstacle detection); QuickCitePro (Chrome extension, 5.0).

Technology Student Association, 2x National Finalist: 8 national events, captain for 6: SAFMS (AI/IoT carbon-credit app, on-chain), drone challenge (Betaflight FPV), VR visualization (Unity, Meta Quest), video game design (Unity, C#), systems control (Python, C++), engineering design, robotics.

VEX Robotics, 3x World Championship Competitor: captain, lead programmer, and driver; 7 seasons of C++ and Python autonomy, PID tuning, CAD, and sensors.

LEADERSHIP

- **American Rocketry Club, Founder and President:** grew to 60+ members; led payload CAD, propulsion analysis (MATLAB), systems integration, and launches.
- **Dream Team Engineering, NeuroSpine Research Team:** with UF Neurosurgery, building a medical image segmentation pipeline for spine CT and MRI (Python, nnU-Net, TotalSegmentator, MONAI, SimpleITK) that automates Hounsfield-unit and VBQ bone-quality metrics for surgical planning.
- **FusionBots, Co-founder:** robotics nonprofit for 200+ students; **Youth Publications and Socioeconomic Forum, CTO:** AI literacy programs in 15+ countries.

TECHNICAL SKILLS

Languages and frameworks: Python, C++, C#, Swift, JavaScript, TypeScript, SQL, MATLAB, React, Next.js, Node.js, Express, Tauri, Electron, SwiftUI, gRPC
Infrastructure and tools: Linux (Ubuntu), Git, Docker, CI, AWS, GCP, Vercel, PostgreSQL, MongoDB, Firebase, Supabase, Stripe, WebSockets, WebRTC, Slurm HPC
AI and ML: PyTorch, ONNX Runtime, OpenCV, computer vision, LLM agents, VLMs, reinforcement learning, CoreML, MediaPipe, Claude Code, Codex, Cursor
Quantitative research: Backtesting, systematic trading strategies, crack spread analysis, market data analysis, forecast-driven trading, NumPy, pandas, SciPy
Robotics and embedded: ROS2, SLAM, path planning, PID and real-time control, Arduino, sensors, Gazebo, MuJoCo, Isaac Sim, PX4, ArduPilot, Betaflight
Hardware and product: VEX, Fusion 360, Onshape, 3D printing, CNC machining, woodworking, metal cutting, band saw, miter saw, Unity, Blender