

Raza Malik

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EDUCATION

Vanderbilt University

Nashville, TN

B.S. Computer Science, Minor in Biological Sciences – GPA: 3.62 (Major: 3.80)

Expected May 2028

- **Coursework:** Deep Learning, Machine Learning, Operating Systems, Algorithms, Data Structures, Computer Architecture, Linear Algebra, Probability & Statistics, Programming Languages, Software Design, Ecology, Genetics
- **Computer Science Teaching Assistant:** Lead weekly Computer Architecture lab section for 20+ students
- **Maria Jorge Ecology Lab:** Identify species in collected field data; evaluate experimental design across ecology literature

EXPERIENCE

Actor Labs

Mountain View, CA

Founding ML Engineer

Jan 2026 – Aug 2026

Sole nonfounder ML engineer at \$4M-seed machine-autonomy startup (Hummingbird, Eniac, 2048 VC, Hyperion)

Model development

- Architected, trained, and field-tested company's first multi-task model via language-conditioning and visual-grounding variants that made the machine steerable by natural language and outperformed single-task specialists 64% of the time
- Led model design for company's first commercial autonomy contract, redesigning action space around position targets and fusing force sensing into model state to emulate professional operation
- Established end-to-end model evaluation system; evaluated unreleased Physical Intelligence models on novel embodiments (98.9% task success), results delivered for PI's upcoming release
- Lifted task success from 34% to 81% by swapping VLA's stock VLM backbone for construction-specialized VLM trained on self-built 225k-sample dataset with spatial captions and VQA plus rehearsal data against forgetting

Edge deployment

- Designed deterministic 100Hz control layer executing model targets, and shipped inference on Jetson Thor at 640ms (from 1.3s cloud) via async receding-horizon execution, sustaining zero-missed-deadline control loop
- Developed VLA compression before NVIDIA released standardized pipelines: JAX-to-PyTorch weight conversion and ONNX/TensorRT mixed precision, reaching 0.9999 action fidelity at $\sim 2.2\times$ speedup

Data platform & MLOps

- Built fleet's data funnel solo, ingesting drives from 100+ machines into verified, deduplicated, training-ready LeRobot 2.0 datasets (2,000+ hours) with zero static credentials in the field
- Designed multi-task dataset around targeted model capabilities, building reproducible annotation pipelines spanning task and subtask structure, motion narration, directives, QA pairs, and bounding boxes
- Defined recorder-to-uploader data contract (manifests, upload markers, drive format) adopted by all fleet recorders

Center for Wildlife Management Studies

Rhotia, Tanzania

Researcher

Jul 2025 – Aug 2025

- Built QGIS pipeline ingesting 5,000+ field observations across Serengeti and Tarangire to map wildlife trends
- Developed spatial model predicting wildlife distribution from interspecies-conflict and animal-behavior data
- Partnered with local researchers and Maasai communities to improve wildlife-conflict data collection protocols

Bain & Company

New York, NY

Data Analyst Intern

Jul 2022 – Aug 2022

- Compiled profiles for 500+ companies involved in M&A transactions, populating a client-facing deal database
- Constructed Excel taxonomies for 150+ European firms, improving indexing and search of a custom deal-tracking system
- Audited 10,000+ data items across M&A records, correcting inconsistencies guiding private equity decision-making

PROJECTS

Multi-Agent RL Ecosystem Simulation | Isaac Lab, Unity, PyTorch, ONNX

Apr 2026 – Present

- Engineered RL pipeline: quadruped policies trained in Isaac Lab (PPO+AMP), deployed to Unity via ONNX/Sentis
- Trained custom 15-DOF deer to walk across 14 runs (2,500 parallel envs, 20K steps/s), eliminating reward-hacking optima
- Built ecologically accurate island worldgen with Whittaker-biome placement and GPU-instanced scatter, and automated a Blender $\rightarrow$ URDF $\rightarrow$ USD pipeline turning rigged meshes into sim assets capable of interacting with the environment

Wildlife Identification & Observation Platform | PyTorch, YOLOv8, FastAPI | [Live Site](#)

Dec 2025

- Achieved 90.7% species / 97.6% class accuracy across 100 species with Late Fusion ensemble (EfficientNet-B3 + ConvNeXt)
- Curated 130,000+ iNaturalist images via automated pipeline using YOLOv8 detection for cropping, filtering, and QA
- Cut fine-grained confusion by $>50\%$ using hierarchical multi-task training with hard negative mining

TECHNICAL SKILLS & AWARDS

Languages: Python, C++, Java, C#, Swift, SQL

ML & Frameworks: PyTorch, JAX, TensorFlow, CUDA, Blackwell, TensorRT, ONNX, Hugging Face, OpenCV, Pandas, NumPy

Systems & Tools: Isaac Sim/Lab, Unity, Docker, AWS, Linux, Git, FastAPI, MQTT, React, Postgres, MongoDB, QGIS

Awards: National Merit VU Scholar, 2x Presidential Volunteer Service Award, National Forensic League Degree of Distinction

Interests: Bears, Guitar, Hiking, Wildlife Photography, National Parks, Vinyl, The Strokes, Olivia Rodrigo, Jalen Brunson