

Bikram Pandit

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Professional Summary

PhD candidate specializing in multi-robot control, reinforcement learning, and sim-to-real transfer. Proven track record of designing and deploying reinforcement learning policies on humanoid and quadruped platforms, with expertise spanning locomotion, manipulation, and cooperative multi-robot systems.

Education

Oregon State University

PhD in Artificial Intelligence

Research focus: large-scale robot learning, decentralized control, sim-to-real transfer, and loco-manipulation systems

Corvallis, Oregon

Sept 2021 – Aug 2026 (Expected)

Rungta College of Engineering and Technology

Bachelor's in Computer Science

India

Aug 2013 – June 2017

Awards and Honors

- **First Place – DARPA TIAMAT Challenge** **2026**
(Phase 1) Developed robust Spot policies enabling high-speed exploration in large-scale environments, reliable fall recovery on unpredictable terrain, and obstacle avoidance in cluttered settings; integrated with an autonomous planner to execute sequential tasks with strong generalization and sim-to-sim transfer.
- **Best Paper Finalist** **ICRA, 2024**
Learning Vision-Based Bipedal Locomotion for Challenging Terrain.

Research Experience

Dynamic Robotics and AI Lab, Oregon State University

Research Assistant

Corvallis, Oregon

Sept 2021 – Present

- Lead development of scalable reinforcement learning systems for bipedal, humanoid, quadruped-with-arms, and multi-robot platforms.
- Designed vision-based RL policies integrating proprioception and onboard camera inputs for terrain-aware locomotion and manipulation.
- Developed decentralized and multi-agent control policies enabling cooperative manipulation and payload transport.
- Built distributed PPO, IPPO, and MAPPO training pipelines in IsaacLab and MuJoCo supporting large-scale parallel simulation.
- Implemented sim-to-real transfer using domain randomization, sensor noise modeling, and robustness training.
- Deployed learned policies on real robots, including Cassie, Digit, Spot, Unitree Go2, and H1, using accelerated inference frameworks such as NVIDIA TensorRT.
- Validated policies in high-fidelity simulation and real-world hardware experiments.

RAI Institute (formerly Boston Dynamics AI Institute)

Robotics Research Intern

Cambridge, Massachusetts

Sept 2024 – Jan 2025

- Collaborated with research teams on humanoid locomotion and loco-manipulation systems.
- Developed multi-instance Isaac Sim infrastructure supporting heterogeneous robot articulations for scalable data generation.
- Built unified imitation learning pipelines to consolidate multiple specialized controllers into a single deployable policy.
- Evaluated and validated natural walking and running behaviors in simulation and on real humanoid hardware.
- Contributed to scalable simulation infrastructure enabling parallel skill training and evaluation.

Patents

- **SYSTEMS AND METHODS FOR DECENTRALIZED MULTI-ROBOT COOPERATIVE TRANSPORT**

Under review

Publications (Selected)

- **Learning Vision-Based Bipedal Locomotion for Challenging Terrain (Best Paper Finalist)** ICRA, 2024
Vision-conditioned sim-to-real locomotion robust to challenging terrain without explicit state estimation.
- **Learning Decentralized Pinch-Lift-Move (decPLM)** ICRA, 2026
Decentralized contact-based coordination scaling cooperative transport to teams of 2–10 robots.
- **Non-conflicting Energy Minimization in RL Based Robot Control (Oral)** CoRL, 2025
Hyperparameter-free energy optimization for RL control with sim-to-real validation.
- **Learning Decentralized Multi-Biped Control for Payload Transport (Spotlight)** CoRL, 2024
Scalable decentralized policies for cooperative payload transport across diverse robot configurations.
- **Simple Masked Training Strategies Yield Control Policies That Are Robust to Sensor Failure** CoRL, 2024
Robust policy training improving resilience to sensor dropout in real-world deployments.

Industry Experience

MiCROTEC Inc.

Machine Learning Intern

June 2023 – Aug 2023

- Accelerated large-scale vision model training by 80 percent through optimized data pipelines and system-level performance tuning.
- Developed robust segmentation models addressing class imbalance and deployment constraints for production systems.
- Integrated model training, evaluation, and deployment into automated ML DevOps pipelines using Docker, CI, and experiment tracking.

Digital Product Labs

Senior Software Developer

Dec 2017 – June 2021

- Designed and deployed production machine learning systems across mobile, web, and cloud platforms.
- Integrated learning-based components into consumer products with measurable performance and scalability improvements.
- Collaborated with cross-functional teams to translate product requirements into deployable AI solutions.

Technical Skills

- **Robot Learning:** Reinforcement Learning, Imitation Learning, Multi-Agent RL, Sim-to-Real Transfer
- **Simulation:** Isaac Sim, IsaacLab, MjLab, MuJoCo
- **Robotics Systems:** ROS2, decentralized control, locomotion, manipulation
- **Deep Learning:** PyTorch, Ray, distributed training
- **Deployment:** NVIDIA Jetson, TensorRT, real-time inference optimization
- **Cloud & Infrastructure:** AWS, Google Cloud Platform (GCP), Docker, Jenkins, CI/CD pipelines
- **Programming:** Python, C++, Java