

JORDAN DOWDY

Ph.D. Student in Electrical and Computer Engineering | Graduate Research Assistant

Telos Lab, Louisville Automation & Robotics Research Institute (LARRI) | University of Louisville

Louisville, Kentucky | jordan.dowdy@louisville.edu | dowdyjordan5@gmail.com

jdowdy05.github.io | [Google Scholar](#) | [GitHub](#) | [LinkedIn](#)

RESEARCH INTERESTS

Reinforcement learning and representation learning for adaptive robot control, emphasizing sim-to-real locomotion, privileged information transfer, and deployable learning systems for legged and humanoid robots.

EDUCATION

Ph.D., Electrical and Computer Engineering

August 2024–Present

University of Louisville | Louisville, Kentucky

Advisor: Jean Chagas Vaz, Ph.D. | Candidacy expected Fall 2026.

M.S., Electrical Engineering

January 2022–August 2024

University of Louisville | Louisville, Kentucky

Advisor: Dan O. Popa, Ph.D. | Thesis: Adaptive Robot Collaboration Using Robotic Skin and Motion Similarity

B.S., Physics; Minor in Mathematics

May 2021

Bellarmine University | Louisville, Kentucky

RESEARCH EXPERIENCE

Graduate Research Assistant

August 2024–Present

Telos Lab, LARRI, University of Louisville | Advisor: Jean Chagas Vaz, Ph.D.

- Introduced a novel neural-network architecture (STRIDE), a privileged knowledge-distillation framework using Barlow-style latent alignment and corrective transformer residuals for sim-to-real blind quadruped locomotion.
- Developed a token-compressed temporal transformer that fuses sparse, low-cost time-of-flight terrain data with proprioception for sim-to-real ROBOTIS OP3 locomotion over uneven terrain.
- Developed a VR imitation-learning pipeline for cube stacking in Isaac Sim that retargets demonstrations into reusable joint-space datasets with post-collection sensor re-rendering and Isaac Mimic expansion.
- Zero-shot transferred several Isaac Sim/Isaac Lab locomotion policies to ROBOTIS OP3 and Unitree Go1 hardware.
- Co-developed a full-body VR tele-loco-manipulation stack for miniature humanoid robots that combines reinforcement-learned locomotion with upper-body teleoperation.

Graduate Research Assistant (M.S.)

January 2022–August 2024

LARRI, University of Louisville | Advisor: Dan O. Popa, Ph.D.

- Created Cartesian Segment Online Dynamic Time-Warping (SODTW), a novel segment-based online DTW variant for real-time motion-similarity estimation and speed-adaptive robot imitation.
- Independently developed the OctoCan tactile-guided physical human-robot interaction system with ARMA/RLS calibration and neuroadaptive control; co-authored its second-stage validation paper.

Research Intern

May 2020–August 2020

Norton Cancer Institute

- Contributed to an apparatus designed to improve uniform radiation-dose delivery for pediatric cancer patients.

Undergraduate Research Assistant

Fall 2018–May 2022

Physics Department, Bellarmine University | Advisor: Akhtar Mahmood, Ph.D.

- Robotics Lab (2018–2020): Built Arduino robots integrating servo motors, sensors, and circuitry.
- Astrophysics/OBARO (2020–2022): Built a Python/GMM pipeline to classify objects in Rubin/LSST PhoSim FITS imagery.

TECHNICAL SKILLS

Programming: Python, C/C++, MATLAB, LabVIEW, Bash

Robotics and Simulation: ROS 1/ROS 2, NVIDIA Isaac Sim, Isaac Lab, MuJoCo

Robot Learning and Scientific Computing: PyTorch, TensorFlow, NumPy, SciPy, pandas

Deployment and Systems: ONNX, NVIDIA Jetson, Docker, Linux, GStreamer, Open MPI

Engineering Tools: Altium Designer, Fusion 360, Git, LaTeX

PUBLICATIONS

- **STRIDE: Self-Supervised Transformer Residual Corrective Connections with Privileged Knowledge Distillation in Locomotion**
J. Dowdy and J. C. Vaz
Manuscript in preparation for submission to IEEE Robotics and Automation Letters (RA-L), 2026.
- **Real-Time Neuroadaptive Control with Tactile Calibration for Physical Human-Robot Interaction**
A. Prakash, M. A. Hanafy, J. Dowdy, and D. O. Popa
Electronics, accepted for publication, 2026. [Preprint](#).
- **Loco-Loco-RL: Low-Cost Terrain Mapping for Humanoid Locomotion with Reinforcement Learning**
J. Dowdy, G. Reizian, and J. C. Vaz
IEEE National Aerospace and Electronics Conference (NAECON), accepted, 2026.
- **Learning to Stack: Cube-Stacking Imitation Learning from Virtual Reality Demonstrations**
G. Reizian[†], J. Dowdy[†], and J. C. Vaz
IEEE National Aerospace and Electronics Conference (NAECON), accepted, 2026. [†]Equal contribution.
- **Towards Torque-Driven Reinforcement Learning for Quadruped Locomotion**
J. Dowdy and J. C. Vaz
IEEE/SICE International Symposium on System Integration (SII), 2026, pp. 1259–1264. Oral presentation.
- **Towards Miniature Humanoid Tele-Loco-Manipulation Using Virtual Reality and Reinforcement Learning**
N. Kosanovic, J. Dowdy, and J. C. Vaz
IEEE-RAS International Conference on Humanoid Robots (Humanoids), 2025, pp. 1233–1240.
- **Isaac Sim-to-Real: Reinforcement Learning Based Locomotion for Quadrupeds**
J. Dowdy and J. C. Vaz
IEEE International Conference on Automation Science and Engineering (CASE), 2025, pp. 2194–2199. Oral presentation.
- **Adaptive Motion Imitation for Robot Assisted Physiotherapy Using Dynamic Time Warping and Recurrent Neural Network**
A. Ashary, M. M. Rayguru, J. Dowdy, N. Taghavi, and D. O. Popa
International Conference on Pervasive Technologies Related to Assistive Environments (PETRA), 2024, pp. 55–62.
- **Adaptive Robot Collaboration Using Robotic Skin and Motion Similarity**
J. Dowdy
M.S. thesis, Department of Electrical and Computer Engineering, University of Louisville, 2024.

ACADEMIC SERVICE

Teaching and Instructional Support

- **Lab Assistant, Computational Physics** | Spring 2022. Department of Physics, Bellarmine University, Louisville, Kentucky. Supported laboratory instruction in Linux, MPI, troubleshooting, and parallel-code execution; guided students in building a 12-node Linux Beowulf cluster with Open MPI.

Conference Reviewing

- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS); IEEE-RAS International Conference on Humanoid Robots (Humanoids); IEEE International Conference on Automation Science and Engineering (CASE); IEEE International Conference on Robotics and Automation (ICRA); and IEEE/SICE International Symposium on System Integration (SII).

Journal Reviewing

- IEEE Robotics and Automation Letters (RA-L).

Research Mentoring

- Mentored five undergraduate researchers—two during the M.S. and three during the Ph.D.—on robotics research.

HONORS AND PROFESSIONAL MEMBERSHIPS

- **Graduate Student Researcher Fellowship** | University of Louisville, 2024–Present.
- **Student Member** | IEEE and IEEE Robotics and Automation Society (RAS).