ALEXY SKOUTNEV

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EDUCATION

Vanderbilt University **2022 - Present**
Ph.D. Computer Science
Advisor: Forrest Laine

Research focus: Robotic Learning, Optimization, and Legged Locomotion

University of Texas at Austin **2018 - 2022**
B.S. Mathematics, B.S. Mechanical Engineering, Minor Computer Science

Selected Courses: Advanced Algorithms, Artificial Intelligence, Databases, Hybrid Embedded Systems, Deep Learning, Mathematical Programming, Optimal Control, Reinforcement Learning, Robotic Algorithms

SKILLS

Programming	**Python, C/C++, Julia**	**Tools**	**Docker, SolidWorks**
Frameworks	**Torch, ROS, Pybullet, MPI, MuJoCo, MongoDB, PostgreSQL**	**OSs**	**macOS, Linux**

EXPERIENCE

Laine Laboratory **2022 - Present**
Graduate Research Assistant ***Nashville, TN***

- **Leading trajectory optimization and reinforcement learning research**
- **Developing real-time solvers and data-driven models for robotic platforms**
- **Conducting hardware experiments on quadruped robots**

Robot Perception and Learning Lab **2021 - 2022**
Research Assistant ***Austin, TX***

- **Designed robotic perception, control, and learning algorithms**
- **Developed a learning-driven framework for reactive quadruped movement and planning**
- **Conducted hardware experiments with the Unitree A1 robot**

Oden Institute for Computational Engineering and Sciences **2021**
Software Engineering Intern ***Austin, TX***

- **Developed, tested, and optimized high-performance computing software for a 2x speedup**
- **Designed a launch platform for large-scale simulations on a 1000+ core supercomputer**
- **Researched parallel algorithms for massive computational problems**

PUBLICATIONS

A. Skoutnev, A. Cinral, P. Sigdel, F. Laine, *An Open-Source Quadruped Trajectory Optimization Stack*, 2023, Preprint.

M. Seo, R. Gupta, Y. Zhu, A. Skoutnev, L. Sentis, Y. Zhu, *Learning to Walk by Steering: Perceptive Quadrupedal Locomotion in Dynamic Environments*, International Conference on Robotics and Automation (ICRA), 2023.

FRAMEWORKS

QTOS **2022-2023**
Python/C++

- **Developed a full-stack interface to bridge the gap between middleware and motion planning.**
- **Conducted online trajectory generation using a quadruped.**
- **Integrated motion planning, simulator, and controller into a unified package.**

SOLO12-SDK **2023**
C/C++

- **Developed a communication interface for the SOLO12 robot platform**
- **Designed a timing protocol for real-time computing**

· **Implemented development tools to simplify trajectory loading and execution**

PRELUDE **2021 - 2022**
Python, C/C++

· **Developed a hierarchical learning framework for robust and agile terrain navigation**
· **Trained a navigation controller based on imitation learning from human demonstrations**
· **Integrated a communication interface between remote systems**

MENTORSHIP

Praful Sigdel (Undergraduate at Vanderbilt to Fisk Consulting) **2022 - 2023**

SERVICE

Information Processing in Computer-Assisted Interventions (IPCAI) Reviewer **2022, 2023**

HONORS

Thomas and Elizabeth Merner Merit Scholarship **2019**

Hagg Family Merit Scholarship **2018**