

# Alexy Skoutnev

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## Education

### Vanderbilt University

DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE

Nashville, Tennessee

Exp. May 2027

### University of Texas at Austin

BACHELOR OF SCIENCE IN MATHEMATICS AND MECHANICAL ENGINEERING

Austin, Texas

May 2022

## Experience

### Laine Laboratory

RESEARCH ASSISTANT

Nashville, Tennessee

August 2022 - Present

- Research real-time optimization trajectory planners
- Develop optimization-based learning and control software
- Conduct hardware experiments with SOLO 12 quadruped robot

### Robot Perception and Learning Lab

RESEARCH ASSISTANT

Austin, Texas

January 2021 - June 2022

- Researched robot perception, control, and learning algorithms
- Developed a control and learning framework for reactive quadruped movement and navigation
- Conducted hardware experiments with Unitree A1 robot

### Oden Institute for Computational Engineering and Sciences

INTERN

Austin, Texas

May 2021 - August 2021

- Developed high-performance computing software
- Performed large-scale simulations on a supercomputer architecture
- Researched parallel algorithms for large scale computational problems

## Projects

### Learning to Walk by Steering

PYTHON/C++

April 2021 - June 2022

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

### Parallel Scaling Performance of MOOSE on TACC

C++/C

Summer 2021

- Numerically approximate heat conduction within mesh geometries using finite element principles
- Execute performance tests utilizing parallel computing algorithms on Frontera
- Model the weak and strong scalability of MOOSE

## Publications

M. Seo, R. Gupta, Y. Zhu, A. Skoutnev, L. Sentis, Y. Zhu, “Learning to Walk by Steering: Perceptive Quadrupedal Locomotion in Dynamic Environments”, arXiv preprint arXiv:2209.09233, September 2022. [Link]

## Skills

**Programming** Python, Julia, C/C++, JavaScript, LaTeX, HTML/CSS

**Frameworks** PyTorch, ROS, OpenCV, PyBullet, iGibson, MOOSE, MongoDB, PostgreSQL, Neo4j

**Software** SOLIDWORKS