Nathan Hewitt

hewittna@oregonstate.edu • (980) 210 5464 • github.com/nhewitt99

EDUCATION

Oregon State University, Corvallis, OR
Masters of Science Student, Robotics — Sept 2021 – Spring 2023 (estimated)

University of North Carolina at Charlotte, Charlotte, NC
Bachelor of Science, Computer Engineering, *summa cum laude* — Sept 2017 – May 2021
Minors in Mathematics and Artificial Intelligence

Fulbright Summer Institute, Glasgow, Scotland
Presented on Gaelic language preservation, later extended to project on language death and AI — Aug 2019

SKILLS AND RELEVANT COURSEWORK

Skills: Deep RL, Evolutionary Algorithms, Python, PyTorch, C++, Linux, Git, ROS, MATLAB, Gazebo, OpenCV
Coursework: Learning-Based Control, Kinematics Dynamics & Control, Multiagent Systems, Robots and Society

RESEARCH EXPERIENCE

Multiobjective Continuous Control for Underwater Manipulation — Sept 2021 – Present
Masters Student, Oregon State University; advised by Kagan Tumer

- Developing learning-based methods for continuous control of agents balancing multiple, unaligned objectives
- Exploring reward shaping and multi-objective optimization for loosely-defined and sparsely-rewarded tasks
- Created simulated manipulation environment using PyBullet and OpenAI Gym, tuned PPO baselines

Real-Time, Privacy-Aware Pedestrian Monitoring on the Edge — Aug 2020 – Aug 2021
Senior Project and Research Associate, University of North Carolina at Charlotte; advised by Hamed Tabkhi

- Led senior design project prototyping full-stack, vision-based pedestrian detection
- Deployed TensorRT models and significantly improved recall using synthetic datasets, resulting in journal paper

Reinforcement Learning for Socially-Legible Control — Jun – Aug 2020
Research Associate, West Virginia University; advised by Yu Gu

- Trained deep reinforcement learning approximators and configured Gazebo simulations
- Generated MDPs to align motion with pedestrian social conventions, resulting in journal paper

NSF Research Experience for Undergraduates — May – July 2019
REU Student, West Virginia University; advised by Yu Gu

- Developed a custom testbed for human-swarm interaction using ROS, resulting in conference paper

Computational Reconstruction of Bone Fractures — Jan – Dec 2019
Research Associate, University of North Carolina at Charlotte; advised by Andrew Willis

- Analyzed performance of an algorithm to plan complex surgery from CT imagery, resulting in journal paper

PUBLICATIONS

Noghre, G. A., Pazho, A. D., Sanchez, J., **Hewitt, N.**, Neff, C., and Tabkhi, H., "ADG-Pose: Automated Dataset Generation for Real-World Human Pose Estimation," *Int. Conf. on Pattern Recognition and Artificial Intelligence*, Paris, France, 2022, pp. 258-270

Smith, T., Chen, Y., **Hewitt, N.**, Hu, B., and Gu, Y., Socially Aware Robot Obstacle Avoidance Considering Human Intention and Preferences, *Int. Journal of Social Robotics*, 2021

Liu, P., **Hewitt, N.**, Shadid, W., and Willis, A., A System for 3D Reconstruction of Comminuted Tibial Plafond Bone Fractures, *Computerized Medical Imaging and Graphics*, 2021

Dhanaraj, N., **Hewitt, N.**, Edmonds-Estes C., Jarman, R., Seo, J., Gunner, H., Hatfield, A., Johnson, T., Yifru, L., Maffeo, J., Pereira, G., Gross, J., and Gu, Y., "Adaptable Platform for Interactive Swarm Robotics (APIS): A Human-Swarm Interaction Research Testbed," *19th IEEE Int. Conf. on Adv. Robotics*, Belo Horizonte, Brazil, 2019, pp. 720-726

LEADERSHIP AND ADDITIONAL EXPERIENCE

Mentor, NSF Research Experience for Undergraduates
Oregon State University Summer 2022
Guided a ten-week project for a visiting undergraduate student, scoping their personal project and providing help and feedback on programming, the research process, technical writing, and presentations.

Team Lead, Senior Design
University of North Carolina at Charlotte Sept 2020 – May 2021
Responsible for organizing meetings, appropriately scoping deliverables, and documenting project progress.

Teaching Assistant
University of North Carolina at Charlotte, ENGR 1201 Aug – Dec 2018
Graded assignments, ran review sessions, and proctored tests for introductory engineering course.

Quality Assurance Intern
Hendrick Motorsports, Concord, NC Jun – Aug 2018
Streamlined inspection data entry with C# and VB scripts, and performed black-box tests for database upgrades.

HONORS AND SCHOLARSHIPS

University Honors Program, UNCC Aug 2017 – May 2021
Fietchner Scholarship, UNCC Aug 2018 – May 2021
Chancellor's List, UNCC Dec 2017 – May 2021