Sean S. Lindstrom

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Experience

Student Trainee Computer Engineer **| Naval Research Laboratory | Washington, DC** *June 2023 – Aug. 2023*

- Developed custom circuitry and electronics for sound source localization using a minimum of 3 agents
- Used ROS, Arduino and Python to control multiple agents in a 3D space

Computer Science Research Intern **| Knexus Research Corporation | Washington, DC** *May 2022 – Aug. 2022*

- Implemented imitation learned controls to design a new gait for a hexapedal robot using Behavior Cloning
- Tested different reinforcement learning techniques on the imitation learned policy such as PPO, SAC, and TD3

Student Trainee Aerospace Engineer **| Naval Research Laboratory | Washington, DC** *May 2021 – Aug. 2021*

- Designed and built lighter-than-air UAVs out of Mylar to track and follow objects of interest
- Implemented a PID controller to provide real-time positional updates based on audio, spatial and visual sensing
- Utilized object tracking using supervised learning and other object detection techniques such as color masking and shape detection on live video feed to detect and track moving targets

Projects

MastoMatch *Sept. 2023 – Dec. 2023*

- Created a web app that helps Mastodon users find accounts/posts of interest
- Suggests profiles based on user specified interests and current follower/following network
- Worked in a team of 9 over a 4-week sprint, implementing Continuous Integration, GitHub Actions and Test-Driven-Development

HapticHelmet *Sept. 2023 – Dec. 2023*

- Designed and prototyped a bike helmet that can give the user directions by gently vibrating to communicate a direction
- 8 vibration motors mounted radially inside the helmet that "tap" the user and a compass to account for the angle the user is looking
- Developed two separate control schemes, one to point the user in the correct direction and another to show the user the direction of the next turn at a frequency proportional to distance to turn
- Used Arduino and integrated with Unity to test navigation controls in a virtual environment

Spasm-bot *Apr. 2023 – June. 2023*

- Designed a vibrating apparatus that can directly attach to the foot plates on a wheelchair and can be turned on and off by the user to promote blood flow in the legs of paralyzed individuals to reduce blood pooling and discomfort
- Worked directly with stakeholders throughout the whole design process to best create a useable and effective product

Exploratory Robotics: Drone Delivery *Jan. 2019 – May 2020*

- Hardware Team Lead: Coordinated a diverse team of 8 people in designing and customizing a drone for an on-campus drone delivery service at Georgia Tech

Helium 3 Topological Mapper *Aug. 2020 – Dec. 2020*

- Planned a small satellite mission to the Moon to search for Helium-3. Designed the entire satellite system, projected costs and timeline as well as trajectory

Custom Furnaces *Sept. 2015 – Ongoing*

- Built coal powered furnaces to reach temperatures up to 3000°F and cast recycled aluminum into custom molds

Education

University of California San Diego | La Jolla, CA *April 2024*
Master of Science in Computer Science | GPA 3.95

Georgia Institute of Technology | Atlanta, GA *December 2021*
Bachelor of Science in Aerospace Engineering | Highest Honors, GPA 3.77

Publications

Bio-Acoustic Monitoring by Lighter-Than-Air Unmanned Aerial Vehicles *ISER 2023*
Authors: Sean Lindstrom, Ethan MacDonald, Donald Sofge

Particle-based Belief Propagation for Line-of-Sight Visual Target Tracking *ACC 2024*
Authors: Tony X. Lin, Manav Gagvani, Sean Lindstrom, Donald Sofge, Fumin Zhang

Skills

Programming: Python, Java, HTML, MATLAB, CSS, C, C++, Haskell
Libraries/Frameworks: NumPy, PyTorch, Matplotlib, Robot Operating System (ROS), Stable-Baselines3, OpenCV
Software: GitHub, LaTeX, SolidWorks, Eagle, Simulink, Inventor, Blender
Communication: Office Suite, design proposals, technical reports, presentations, Spanish (basic)
Hardware: Raspberry Pi, Arduino, Hand tools, 3D printer, Bandsaw, Drill Press

Relevant Coursework

Software Engineering, Machine Learning, Reinforcement Learning, Computer Architecture, Natural Language Processing, Haptics, Human-Robot Interactions, Robotics and Perception, Controls, Systems Design