Brendon Matusch

+1 (650) 733-3340
matusch@stanford.edu
https://github.com/bfmat

Career Aspirations

My goal is to take advantage of modern machine learning and robotics to make scale and efficiency gains through automation in industries that have not yet benefited from these technologies. Most of my past experience is in autonomous driving and robotics.

I study computer science at Stanford, graduating in Dec 2024.

Work History and Projects

Developer at HYPRLABS on end-to-end learning for autonomous food delivery robots, Jul–Sept 2022 and Jan–Sept 2023

- Robots have to navigate crowded urban areas; I was focused on road crossings, human interactions, and driving more generally
- Other areas of focus: neural network explainability, compute efficiency for onboard hardware, and mapping interfaces

Intern at NVIDIA on Isaac Gym simulation technology and reinforcement learning, March–September 2021

- I worked on NVIDIA's Isaac Gym simulation team, developing physically realistic, parallelized, GPU-accelerated 3D robotics simulations intended to be used for reinforcement learning and sim2real applications

Founding team member of Midjourney, working on natural language experiments, January–September 2020

- Developed an interface that provides the ability to explore a text repository like Wikipedia in the style of Google Maps, zooming in and out in abstract information space

Research on unsupervised reinforcement learning at Vector Institute, 2019–2020

- Studied and implemented potential exploration objectives for unsupervised reinforcement learning, and statistically evaluated their empirical effectiveness on agent behavior
- NeurIPS Biological and Artificial RL Workshop oral presentation

Independently developed ML methods for dark matter detection at SNOLAB, 2018–2019

- Independently developed models to distinguish background alpha radiation from potential WIMP dark matter candidates
- Paper presented at CERN ACAT 2019, Switzerland

Converted a go-kart to a self-driving vehicle, 2017–2018

- Modified a go-kart with motorized steering control; collected data and trained machine learning model to identify the position of road lines and developed software to steer the vehicle
- Best project awards at the Canada-Wide Science Fair and European Union Contest for Young Scientists

Areas of Experience

- Intersection of software and hardware
  - Robot programming and controls
  - Physical simulations
- Machine learning
  - Convolutional neural networks
  - Reinforcement learning
  - Natural language processing
- Extensive experience with NumPy, PyTorch, TensorFlow, etc.
- Knowledge of Python, C#, Java, C, C++, Swift
- 3D development with Unity
- Familiar with Git and GitHub
- Strong writing and communication skills

Education

- 2020–present: Stanford University
- 2016–2020: Lo-Ellen Park Secondary School, Sudbury, ON, Canada

Other interests

- Have played the piano for 16 years and studied music theory and history
- Achieved Associate Diploma in Piano Performance from the Royal Conservatory of Music, Toronto
- I compose piano covers and original improvised works, and have uploaded two solo piano albums to Spotify
- Cross-country running, road bicycling, rock climbing
- Introduced students at my former high school to robot programming and computer vision