Matthew Trang
Machine Learning Engineer

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Portfolio: mattluutrang.github.io
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SKILLS

Languages	Python, C++, Java, Javascript, MATLAB/Simulink, LaTeX
Programming Tools	PyTorch/Tensorflow, StableBaselines, RLLib, OpenCV, Qt, Pandas, Scikit-Learn
Engineering Tools	Arduino, Raspberry Pi, AutoCAD, ROS, AutoDesk Inventor, Blender, Agile Development

TECHNICAL EXPERIENCE

Machine Learning Engineer / DARPA ACE, Gamebreaker, etc.   **Dec 2019 — Present**
Heron Systems   *Alexandria, VA*

- Train RL agents for government defense contracts involving transfer learning, trustworthy AI, and complex control systems
- Research PETS and PPO RL algorithms for creating low-to-high fidelity generalized transfer learning algorithm
- Coded custom neural network modules for validating game balance for DARPA Gamebreaker
- Devised novel reward schemes and neural networks for RL AI Fighter Jet Agents on ACE and ADT contracts

Reinforcement Learning Researcher / ECE Dept   **Dec 2021 — Present**
Virginia Tech   *Blacksburg, VA*

- Research Multi-Agent Generalized RL for Autonomous Systems using PyBullet to simulate collaborative systems
- Develop drone collaboration simulation environments and data processing pipeline for testing RL algorithms

Graduate Teaching Assistant / ECE 3574 Applied Software Design   **Jan 2022 — May 2022**
Virginia Tech   *Blacksburg, VA*

- Assisted students with class projects and taught subject matter for two classes with ~70 students in total in C++ software design
- Collaborated with Professors and TAs to formulate comprehensive software design curriculum and projects

Senior Design Team Member / PowerHAUS   **Feb 2021 — Dec 2021**
Virginia Tech   *Blacksburg, VA*

- Developed TF2 object detection image classifier and mobile app for controlling smart devices in a smarthome
- Validated power electronics cartridge consisting of systems such as a solar panel array and inverter

Embedded UAV Software Engineering SEPP Intern / Software Systems Group   **May 2020 — Aug 2020**
Collins Aerospace   *Sterling, VA*

- Programmed multi-camera visual navigation pipeline for an UAV using MATLAB Simulink and C++
- Collaborated remotely with team of two fellow interns to demonstrate UAV autonomous landing with fiducial markers

Design Lead Upperclassman Advisor/ Team Juvo   **May 2020 — Aug 2020**
Virginia Tech   *Blacksburg, VA*

- Designed, modeled, and 3d-printed, a Wearable Mouse Band to assist a disabled student in utilizing his computer
- Improved computer navigation speeds of the student user by 30% and accurate click rate by 80%

EDUCATION

Master of Science in Computer Engineering, *Virginia Tech*   Expected Grad Dec 2022
GPA: 4.00

Bachelor of Science in Machine Learning, Minors in Computer Science, Mathematics, *Virginia Tech*   Dec 2021
GPA: 3.94

PATENTS

Non-invasive wearable biomechanical and physiology monitor for injury prevention and rehabilitation — US11284838B2
George Mason Research Foundation, Oct 2017

Artificial cognitive declarative-based memory model to dynamically store, retrieve, and recall data derived from aggregate datasets — US20180240015A1
Scriyb LLC, Feb 2017

AWARDS/ACTIVITIES

IEEExp Virtual Session Presenter, IEEE@VT	Sep 2021
1st Place, DARPA AlphaDogfight Trials, Heron Systems	Aug 2020
1st Place, National SourceAmerica Design Challenge, SourceAmerica	Jun 2019
Pamplin Scholar Award, Virginia Tech, Full-Tuition Scholarship	Mar 2019
Valedictorian, Patriot High School, 4.909/4 GPA	Jun 2018