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Matthew Trang

Machine Learning Engineer

Portfolio: mattluutrang.github.io
github.com/trangml
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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. <i>Heron Systems</i>	Dec 2019 — Present <i>Alexandria, VA</i>
<ul style="list-style-type: none">Train RL agents for government defense contracts advancing transfer learning, trustworthy AI, and complex control systemsBootstrap RL Testing Environment for creating low-to-high fidelity generalized transfer learning algorithms to provide five different testing environments with configurable difficultiesCoded custom neural network modules for validating game balance for DARPA Gamebreaker, generating a 90% accurate win probability classifier for Starcraft II with interactive React JS dashboardDevised novel reward schemes and neural networks for RL AI Fighter Jet Agents, achieving 1st place in DARPA ADT	
Reinforcement Learning Researcher / M.S. Computer Engineering <i>Virginia Tech</i>	Dec 2021 — Present <i>Blacksburg, VA</i>
<ul style="list-style-type: none">Research Multi-Agent Generalized RL for Autonomous Systems using PyBullet to simulate collaborative systemsDevelop drone collaboration simulation environments and data processing pipeline for rapidly testing RL algorithms	
Graduate Teaching Assistant / ECE 3574 Applied Software Design <i>Virginia Tech</i>	Jan 2022 — Present <i>Blacksburg, VA</i>
<ul style="list-style-type: none">Collaborate with Professors and TAs to formulate comprehensive software design curriculum and projects for two semestersTaught subject matter and assisted students with software projects for two classes with ~70 students in total using C++ and Qt	
Senior Design Team Member / PowerHAUS <i>Virginia Tech</i>	Feb 2021 — Dec 2021 <i>Blacksburg, VA</i>
<ul style="list-style-type: none">Designed TF2 object detection image classifier and mobile app for controlling smart devices in a smarthome with limited dataValidated safety and functionality of power electronics cartridge consisting of high-voltage systems such as a solar panel array and inverter prior to deployment at the Dubai Expo 2022	
Embedded UAV Software Engineering SEPP Intern / Software Systems Group <i>Collins Aerospace</i>	May 2020 — Aug 2020 <i>Sterling, VA</i>
<ul style="list-style-type: none">Programmed multi-camera visual navigation pipeline for a GPS-denied 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 <i>Virginia Tech</i>	Sep 2018 — Aug 2020 <i>Blacksburg, VA</i>
<ul style="list-style-type: none">Modeled, prototyped, and 3d-printed a Wearable Mouse Band assistive device to help a disabled student use a computerImproved computer navigation speeds of the student user by 30% and accurate click rate by 80% for 2+ years of college	

EDUCATION

Master of Science in Computer Engineering, Virginia Tech GPA: 4.00	Expected Grad Dec 2022
Bachelor of Science in Machine Learning, Minors in Computer Science, Mathematics, Virginia Tech GPA: 3.94	Dec 2021

PATENTS

Non-invasive wearable biomechanical and physiology monitor for injury prevention and rehabilitation — US11284838B2 <i>George Mason Research Foundation, Filed Oct 2017, Granted Mar 2022</i>
Artificial cognitive declarative-based memory model to dynamically store, retrieve, and recall data derived from aggregate datasets — US20180240015A1 <i>Scryb LLC, Filed Feb 2017</i>

AWARDS/ACTIVITIES

IEEEExp 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