Steven Brewer

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Summary

Machine Learning Engineer with 15+ years of engineering experience spanning robotics, computer vision, and autonomous systems. Currently leading AI research at Carnegie Mellon's Software Engineering Institute. Top Secret SCI clearance.

Experience

Machine Learning Engineer | Software Engineering Institute, Carnegie Mellon University | 2023-Present

- Principal Investigator for Course of Action Planners research comparing classical, learning-based, and agentic planners for multi-drone disaster response
- Led autonomy study briefed to Secretary of the Navy, resulting in organizational restructuring for robotic systems acquisition
- Implemented diffusion policy behavior cloning and regret-based explainability for adversarial testing of multi-agent systems

Machine Learning Engineer | Pratt & Whitney | 2018-2023

- Built data analytics infrastructure including statistical process controls, predictive maintenance, and automated defect detection
- Developed computer vision segmentation models for ceramic part inspection
- Led Rapid Part Assessment project using CV for aerofoil inspection, resulting in 5 patents
- Stood up MLOps registry and data labeling services on AWS

Senior Mechanical Engineer / Technical Lead | Triumph Aerospace / Calspan | 2010-2018

- Technical Lead for USAF Adaptive Engine Technology Development Program with General Electric
- Led wind tunnel model design for K-FX fighter and SR-72 programs
- Designed actuation systems for NASA Langley Boeing Blended Wing Body testing

Education

M.S. Robotics Engineering | Worcester Polytechnic Institute | 2022 | GPA: 3.90

- Capstone: Autonomous UAV for disaster response using curriculum-based RL with Double DQN

B.S. Mechanical Engineering | West Virginia University | 2010 | GPA: 3.25

Skills

- **ML/AI:** PyTorch, fastai, TensorFlow, OpenCV, RLlib, LangChain/LangGraph, LeRobot
- **Programming:** Python, SQL, C++, MATLAB/ Simulink
- **Data:** Pandas, NumPy, SciPy, Scikit-learn
- **Robotics:** ROS, AirSim, Isaac Sim
- **Infrastructure:** Docker, AWS, CVAT
- **Other:** Lean Six Sigma Green Belt

Awards & Patents

- 5 patents for Rapid Part Assessment (automated aerofoil visual inspection)
- Pratt & Whitney Innovation Fair Winner (computer vision defect detection)