

Joshua Field

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EXPERIENCE

Humatics

Waltham, MA

Senior Software Engineer

Jun 2023 – Present

- Owned the edge sensor stack (LiDAR, IMU, GNSS, and Camera) on NVIDIA Jetsons, building C++ & Python ROS2 drivers as the foundation for the downstream localization and defect-detection pipeline
- Architected the production cloud analytics pipeline on AWS Batch, processing sensor data with Dask into Grafana dashboards, and cut the team's largest data cost 82% by migrating from InfluxDB to Timestream
- Established the team's entire CI/CD system on GitHub Actions, running multi-architecture Docker builds, integration tests, and hardware-in-the-loop tests before deploying to a fleet of 6 trains across 2 transit operators
- Developed a MuJoCo simulation pipeline modeling train dynamics, converting track models into 3D scenes via a custom Blender-to-MJCF plugin and generating synthetic sensor data for algorithm development

Amazon Robotics

North Reading, MA

Software Development Engineer

Aug 2022 – Mar 2023

- Shipped material-flow orchestration features in Java and TypeScript directing robotic arms to move packages between zones, and was hands-on testing and deploying them across a production fleet of 200+ workcells
- Built a CloudWatch metrics pipeline to monitor live fleet health, and held on-call responsibility to triage and resolve production workcell faults

Software Development Engineer Co-op

Jan 2021 – Jun 2021

- Built a package-singulation detection proof of concept in Python and TensorFlow, applying a continual-learning SageMaker pipeline that adapted the training dataset to varying warehouse lighting

California Institute of Technology

Pasadena, CA

Software Engineer Intern

Summer 2018, 2019 & 2020

- Engineered an IoT predictive-maintenance network of 23 distributed sensors on Arduino and Raspberry Pi, continuously monitoring a wastewater treatment process
- Implemented supervised predictive-maintenance classification and unsupervised anomaly detection models, with an Android monitoring app backed by SQLite and AWS

Scientific Systems

Woburn, MA

Software Engineer Co-op

Jan 2019 – Jun 2019

- Developed collaborative-autonomy software for path-planning missions and multi-UAV RF localization, focusing on algorithm development and simulation testing in C++, Python, and MATLAB

EDUCATION

Northeastern University

Boston, MA

B.S. & M.S. in Computer Engineering · Computer Vision, Machine Learning, Algorithms

Sep 2017 – May 2022

Awards: Gorlov Prize for Innovation, NUAUV Software Lead, Dean's List, 1st place NASA Hackathon, Eagle Scout

SKILLS

Languages Python, C++, Java, TypeScript, MATLAB

Technologies ROS2, Gazebo, MuJoCo, AWS, InfluxDB, Docker, GitHub Actions, SQL, TensorFlow, OpenCV

PROJECTS

Swarm Carrier Capstone – Software Lead

Jul 2021 – Dec 2021

- Designed and field-tested a large octocopter for in-air deployment of multiple UAVs that autonomously caught themselves via free-fall and precision-landed using a depth camera and OpenCV ArUco markers
- Built a ROS2 interface with a Pixhawk flight controller supporting multi-vehicle communication, simulation, and path planning, in Python and C++