Joshua Field

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Skills

Languages: C++, Python, MATLAB, Java, Typescript

Technologies: ROS/ROS2, Gazebo, Tensorflow, OpenCV, Android Studio, AWS, SQLite

Experience

Humatics | Software Engineer   Jun '23 - Present
Waltham, MA | ROS2, AWS, C++, Python, InfluxDB
- Architected and deployed track monitoring system with edge ROS2 sensor drivers (LIDAR, IMU, GNSS), and cloud (InfluxDB, AWS CDK, Batch, Dask) infrastructure for processing high-frequency sensor data (>RAM)
- Engineered a full IoT device management platform with secure remote access (SSH tunneling), automated deployment updates, and integrated CI/CD (GitHub Actions, Docker).
- Reduced data infrastructure costs by 75% through optimized InfluxDB querying (S2 geofencing) and developed advanced data analysis dashboards (Grafana, MQTT) providing key fleet insights.

Amazon Robotics | Software Development Engineer I   Aug '22 - Mar '23
Boston, MA | Java, AWS, Typescript
- Developed features for robotic workcells to orchestrate the movement of material throughout a warehouse
- Designed and implemented a metrics pipeline and infrastructure using AWS to monitor robotic workcells

Amazon Robotics | Software Development Engineer Co-op   Jan '21 - Jun '21
Boston, MA | Python, Java, AWS, Typescript
- Developed a package singulation detection solution, using Tensorflow to classify images of packages
- Fully integrated the project with AWS (Sagemaker, GreengrassV2, Lambda, Cloudwatch)

California Institute of Technology | Software Engineer Intern   Summer '18, '19 & '20
Pasadena, CA | Python, Java, AWS, Arduino, SQLite
- Developed a smart maintenance sensor network that monitors the treatment of waste water using an Arduino & Raspberry Pi the remaining useful life, and failure root cause
- Implemented supervised predictive maintenance classification and unsupervised anomaly detection models
- Built an Android app to monitor the sensor network with a backend of SQLite & AWS (DynamoDB, IoT, Cognito, Lambda, SNS)

Scientific Systems Company Inc. | Software Engineer Co-op   Jan '19 - Jun '19
Woburn, MA | C++, Python, MATLAB
- Developed collaborative autonomy software for path planning missions and Multi-UAV RF localization, focusing on algorithm development and simulation testing

Education

Northeastern University | BS & MS in Computer Engineering   May '22
Boston, MA | GPA: 3.88
- **Awards:** Gorlov Prize for Innovation (1st Place Capstone Project), Dean's List, Eagle Scout, NASA Space Apps Hackathon - Boston (1st Place)

Projects

Swarm Carrier Capstone | Software Lead   Jun '19 - May '22
Python, C++, ROS2
- Designed and field tested large octocoptor UAV for deployment and recovery of multiple UAVs
- ROS2 and PX4/RTPS architecture to support multi vehicle communication, simulation and path planning
- Implemented autonomous free fall catching and precision landing with OpenCV ArUco markers