# WYATT JORDAN | ROBOTICS SOFTWARE ENGINEER

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## Skills

- **Languages**: C++, C, Python, SQL, Typescript
- **Software**: ROS2, Moveit2, CuMotion, OMPL, Eigen, OpenCV, PCL, Isaac Sim, Optitrack Motive
- **AWS Cloud**: EC2, ECS, S3, ECR, VPC, CDK, CI/CD, IAM
- **General**: Docker, Linux, git, Precision Time Protocol (PTP), Extended Kalman Filter (EKF)
- **Hardware**: Franka Research 3, LIDAR, Depth Cameras, Optitrack Mocap, Oscilloscope, JTAG

## Experience – 6+ years

### SDE II | AMAZON LAB126, CONSUMER ROBOTICS – NEXT-GEN PRODUCT — DEC 2022 – PRESENT

- Completed **hand-eye calibration** (**<5mm)** of Franka Research 3 with autonomous motion planning (video).
- Developed **multithreaded C++ libraries** for robotic self-monitoring, metrics, and recovery mechanisms.
- Calibrated an OptiTrack IR camera system within **sub-millimeter accuracy** for evaluating sim-to-real gaps.
- Tested Simulink EKFs on **real-time custom ARM silicon** with reduced floating point computation capacity.
- Designed a **cloud-based simulation framework** (video) for applied scientists while mentoring junior devs.
- Developed **Nvidia powered docker containers** distributed via custom **cloud deployment** pipelines.
- **Researched and selected sensors** for ground truth perception within **cross-functional team requirements**.

### SDE I | AMAZON LAB126, CONSUMER ROBOTICS – ASTRO PRODUCT — FEB 2021 - DEC 2022

- **Reduced latency by 300ms** for mobility actions by improving acquisition of compute and sensing nodes.
- Reduced ROS node crashes by **1,000s of instances per month** and designed future-proof recovery mechanisms.
- **Diagnosed hundreds of issues** via system logs from all software components on a consumer robotics platform.
- Developed **critical, on-boot safety software** which measured sensor hazards and locked-out faulty devices.
- Migrated **100s of metrics** between cloud platforms with **60+ SQL health dashboards** while reducing cost.
- **Shipped over 30 OTA updates** while satisfying cross-team APIs and **improving software stability**.

### SOFTWARE ENG | ARMY RESEARCH LAB, AUTONOMOUS SYSTEMS — MAY 2019 - FEB 2021

- Developed data processing scripts for training an **object pose detection neural network** (publication).
- **Deployed neural networks** processing camera data in real-time inside **Docker containers** with ROS2 (model).
- Developed **LIDAR-based object tracking** with 3D data structures and methods (e.g. octree, ray tracing).
- **Implemented a Kalman filter** for probabilistic object trajectory prediction and matching,

### ROBOTICS DEVELOPER | GROVE CITY COLLEGE, SENIOR PROJECT — AUG 2018 - MAY 2019

- Implemented **Lidar processing algorithms** for environment mapping, obstacle detection, localization. (videos)
- Developed and tested **motor control loops** and sensor data streams on an **embedded Linux system**.(github)

## Education

### B.S. IN ELECTRICAL ENGINEERING | GROVE CITY COLLEGE — MAY 2019

Minors in Robotics, Computer Science. Magna Cum Laude, Trustee Fellow Scholar.