WYATT JORDAN | ROBOTICS SOFTWARE ENGINEER

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Skills

- **Languages**: C++, C, Python, SQL, Typescript
- **Software**: ROS/ROS2, Moveit/Moveit2, CuMotion, OMPL, Eigen, OpenCV, PCL, Isaac Sim, Motive
- **AWS Cloud**: EC2, ECS, S3, ECR, VPC, CDK, 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

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

- Developed automated path planning and data collection for **hand-eye calibration** of a Franka Research 3 manipulator (video). Calculated, verified, and iteratively **improved calibration to <5mm**. (Python, Numpy)
- Tested Simulink EKFs on **real-time custom ARM silicon** with reduced floating point computation capacity.
- Mentored and managed junior developers while leading the design of an automated **cloud-based simulation framework** (video), enabling applied scientists to efficiently evaluate, refine, and validate manipulation algorithms. (Isaac Sim, AWS EC2, AWS ECR, AWS VPC, Docker, ROS2, Open Motion Planning Library, CuMotion)
- Developed cloud deployment pipelines for **Nvidia powered docker containers** (Typescript, AWS CDK, Docker)
- Researched and selected sensors for **ground truth perception** satisfying cross-functional team requirements.
- **Calibrated and time-synchronized** an OptiTrack IR camera system with robotic manipulators, providing ground truth data for evaluating sim-to-real gaps. (C++, Natnet SDK, Motive, ROS2, Precision Time Protocol)

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

- Patched, tested, and shipped software solutions within **monthly OTA update** deadlines while improving **stability between highly interdependent robotic software modules**. (C++, ROS, Python, Linux)
- Maintained **behavior tree libraries** for multi-process ownership of compute and sensing resources (ROS, C++)
- **Analyzed 100s of failures** across software modules on a consumer robotics platform (ROS, C++, Python, bash)
- Developed **multithreaded C++ applications** for device self-monitoring, metrics, and recovery mechanisms.
- Developed **critical, on-boot safety software** which measured sensor hazards and locked-out faulty devices.
- **Migrated 100s of device metrics** between cloud platforms, minimized and justified metrics costs
- Developed **60+ SQL dashboards** and automated metric analysis tooling in AWS. (SQL, AWS S3, boto3)
- Wrote test plans, conducted analysis, and **developed automation scripts** for QA across time zones. (Python)

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

- Developed **Docker containers for neural networks** processing camera data in real-time via ROS2 (model).
- Labeled data and wrote supporting Python scripts for an **object pose detection neural network** (publication).
- Developed software for **tracking multiple dynamic objects with LIDAR** in unknown environments using efficient 3D data structures including octrees and ray-tracing (ROS, C++, Point Cloud Library / PCL)
- **Implemented a Kalman filter** for probabilistic object tracking, matching, and prediction (ROS, C++, Eigen)

- Configured, **networked and time synchronized** a many compute nodes and sensors on robotics platforms.
- **Improved C++ sensor drivers** for compatibility and additional functionality with existing robotics platforms.

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

- Implemented **LIDAR processing algorithms** for environment mapping, obstacle detection, localization (videos)
- **Designed a robotics platform** on a budget with the necessary compute and sensing capabilities (github).
- Supervised a team of multi-disciplinary students in an **autonomous robotics platform design cycle**.
- Developed, tuned, and tested **motor control loops** and sensor data streams on an embedded Linux system.
- Completed various elective classes in **robotics manipulation, mobility, sensing, algorithms**, and PCB design.

Education

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

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