

Summary

Senior Software Engineer with a proven track record pushing robotics software projects forward for 8 years.

Skills

Leveraging Robotics Algorithms: ROS, PX4, Kalman Filters, probabilistic robotics, amcl, Cartographer, multi-robot, mapping, Object Detection, GStreamer.

Working on Embedded Platforms: STM32, NVIDIA Jetson, NuttX, FreeRTOS.

Connecting to Networks: MQTT, CoAP, REST, AWS Lambda, IPv6, HTTP, WebSockets.

Accelerating Software Releases: CI, HIL, SIL, Docker, Github Actions, pytest, Google Test.

Tooling with Web + Full Stack: FastAPI, Django, React, SQLAlchemy, gcloud.

Using the Best Languages/Tools: C++, Python, Bash, C, Linux Services + Networking, Git, AGILE.

Experience

Cultural Immersion and Language Study Project, The Netherlands

OCTOBER 2023 – DECEMBER 2023

Learned Dutch to a conversational proficiency by dedicating hours daily over several months. Traveled to the Netherlands for 4 weeks, fully immersing in the culture and practicing language skills with local relatives and residents.

Professional Development Sabbatical, Austin

JULY 2023 – PRESENT

Advanced my expertise in robotics through a review of the latest developments and review of Kalman filters, control theory, algorithms, and frameworks like qemu, ROS2. Developed a web application for personal trainers, leveraging skills that may be useful for robotics data mining and building internal web tools.

Verge Aero, Austin/Remote– Drone Software Developer for Drone Shows

JULY 2022 – JUNE 2023

Developed Release Strategy. Built CI. Created Tools. Simplified Firmware.

Ascendant Engineering Solutions, Austin– Embedded Software Engineer for Drones

MARCH 2020 – JULY 2022

Developed IoT and Robotics Firmware.

SIERA.AI, Austin– Robot Application Software Engineer for Forklifts and Warehouse Robots

JUNE 2019 – MARCH 2020

Global planning, multi-robot traffic management, robotics localization and control, driver development, performed deployments.

Draper (Labs), Cambridge, MA – Embedded Software Engineer II for Drones and Robo-Parachutes

JUNE 2016- JUNE 2019

Led a team of interns and a senior UI engineer through two projects in developing drone mission control GUIs. Managed software testing strategy on a team of 5 for a drone project including live demonstrations for government officials. Implemented CI as continuous testing in 3 robotics projects. Integrated hardware-in-the-loop flight simulations based on logs collected from flights.

Education

Northeastern University, Boston – M.S. Computer Science – August 2019

Worcester Polytechnic Institute, Worcester – B.S. Electrical and Computer Engineering – May 2016

I founded the Art and Design Club, developed accessibility wearables, and served as PR Chair to market events for the IEEE student branch.

Feedback From Managers

See LinkedIn for actual quotes.

Alex is a hard working individual with a lot of patience to solve tough engineering problems. He has a particularly well structured approach to analysis and coming up detailed solutions ground up. I

was always amazed by his wizardry on bash scripting! He did a great job at [Company Name], all of us really enjoyed working with him. – Former Manager

Alex has extensive knowledge of software for embedded applications, including low-level communication interface drivers and protocols including I2C, RS485, RS232, and more. He came up to speed quickly on multiple targets/ development environments and navigated existing code bases with ease. Alex has a strong work ethic and great communication skills, is an overall pleasure to work with!

Interests

Weightlifting, Language-Learning, Hanging Out at Cafes, Watercolor + Sketching.

Certified in FAA Small UAV, OSHA Forklift, OSHA 10-hour, Texas Boater Education.

More keywords . . .

ROS, ROS2, OpenCL, OpenGL, C++, PX4, Gazebo, Qemu, Robot Localization through EKF / MSCKF, SLAM, AMCL, Google Cartographer, Creating Global and Local Planning algorithms, Motion Capture Systems, Algorithms (Sorting, Searching, Graphs, Geometrics, C++ std), uncrustify, Git + Gitlab + Github, Agile, Atlassian Suite (BitBucket, Confluence, Jira), Slack (including webhooks), SVN, redmine, SmartBear, MagicDraw, pydantic, typer (python CLIs), google-cloud-storage, Django, NextJS, Flask, Apache, Common Gateway Interface, AngularJS, Bootstrap, HTML5, Canvas, p5.js, STM32CubeIDE, Qt GUIs, MATLAB, MySQL, postgresSQL, sqlite3, redis, Google Cloud Storage, mongo.db, EEPROM, GPS Drivers, IoT Devices, Signal Processing and Digital Filtering, RS485, I2C, SPI, Modbus, TCP, CAN, Itron, MQTT, CoAP, UDP/TCP over IP, STM32, Atmel, Qualcomm Snapdragon, MSP430, NVIDIA Jetson TX2, Raspberry Pi, Cyclone II FPGA, gdb, valgrind, qemu, CI, Embedded Systems, C++, C, Python, Creating linux, systemd services, VNC,, crons, network proxies, nmcli,, fstab, setup,, FreeRTOS, NuttX, Linaro, BusyBox, RHEL, PuTTY, Toolchain tools (gcc, ar, ld, nm), Ubuntu Snaps, dpkg, tar, Google Test, unittest, robot_framework, pytest, cpplint, log-based simulations airsims for testing