TROY NEUBAUER

troyneubauer@gmail.com +1 703-400-8259 github.com/TroyNeubauer linkedin.com/in/troyneubauer Daytona Beach, Florida

EDUCATION

Bachelor of Science: Computer Science

Embry Riddle Aeronautical University

Sep 2020 – May 2024 Daytona Beach, Florida

Specialization in CyberSecurity

Non-Degree

George Mason University

Sep 2018 – May 2020 Fairfax, Virginia

Completed 21 credits of college credit while in high school

SELECTED SKILLS

Awards

Eagle Scout - Bronze Palm Boy Scouts of America

Second Place in Innovative Defense Technologies 2017 Black Box Testing contest

Soft Skills

Leadership | Active Listening | Constructive Feedback | Business Management | Technical Writing | Lecturing

Rust

Tokio | rocket | serde | high-performance | binrw | GRPC | Rust

Embedded

Embedded ARM | Encoders | Servos | CAN | XBee RF Module | Lidar Sensor | Talon Motor Controllers | roboRIO

Networking

iptables | Wintun | Wiregaurd | OpenVPN | firewalld

C++

RapidJson | CMake | Premake | NS3 | Curl | GRPC | OpenCV

DevOps

Docker | GitHub Actions | Drone CI/CD | Concourse CI/CD | CircleCI | Phabricator | git | Fedora 34

Android

Jetpack Compose | Gradle | Flutter | Shared preferences | Application lifecycle

Java

JNI | Gradle | Java 13

Other

ABOUT ME

Driven Robotics Engineer with a passion for high performance systems, things that fly, embedded systems, and small details.

EXPERIENCE

Robotics Software Engineer (contract)

Anduril Industries Inc

Sep 2023 – Present Remote

- Added support for waypoint missions on drone via manipulation of ArduCopter state machine inside high-level, deterministic, software state machine
- Maintence of existing Android drone control app. As owner of the app, balancing feature requests with testing and bug fixing

Robotics Software Engineer

Anduril Industries Inc

Jan 2023 – Aug 2023 Mountain View, California

- Wrote and validated experimental low-latency video stack which was shown in customer demo less than a year after joining the project
- Used the Tracy profiler and evidence based iteration to improve total Rust video stack latency by 45% over previous implementation
- Empirically derived time constant to correct offset vendor video timestamps for accurate state estimation
- Re-wrote Jetpack Compose app for drone control in less than three months and demoed capability successfully to customer
- Optimized video stream on Android App by leveraging the Java Native Interface to utilize existing optimized, Rust-based, video pipeline

Sensor Integration Engineer Intern

Anduril Industries Inc

Aug 2022 – Jan 2023 Remote

- Conducted analysis of existing low-latency video tooling which was found to be inadequate
- Wrote low-latency hardware accelerated video stack in Rust for performing autonomous vehicle navigation via EO imaging in real time
- Designed zero copy parser for low latency integration with LRF

Sensor Integration Engineer Intern

Anduril Industries Inc

May 2022 – Aug 2022 Costa Mesa, California

- Developed a closed loop air conditioning daemon to keep batteries within thermal tolerance autonomously
- Established infrastructure for utilizing Rust with CAN devices across the robotics org
- Designed and implemented a manual control daemon to maintain human involvement in positioning of surveillance towers
- Utilized test driven development and CI/CD to rapidly validate and deploy new air conditioning daemon to production in six weeks as an intern

Chief Technology Officer

null.black Inc

Apr 2021 – Jan 2023 Fairfax, Virginia

- Lead five person technical team in overhauling frontend, backend, VPN app and VPN edge server
- Built VPN edge server currently deployed to 7 servers across the globe that handle terabytes of network traffic

Arducopter | Nix | Control Theory | Nvidia hardware platform | Embedded C | Linux | Bash | Scientific Method | Netlogo 3D | STM32 | Lua | Javascript | React | OpenGL

LINKS

View this resume as a WebAssembly app:
tneubauer.xyz/resume

View the source code:
github.com/TroyNeubauer/Resume

- Migrated server architecture from OpenVPN to Wireguard with zero downtime for increased stability, performance, and maintainability
- Created core VPN abstractions for cross platform support across Windows, MacOS, Linux, IOS, and Android
- Utilized VPN abstractions and Flutter + Dart to make intuitive app guided by user testing
- Oversaw design-oriented rewrite of the https://null.black frontend

Undergraduate Researcher

Office of Naval Research

Sep 2020 – Sep 2022 Daytona Beach, Florida

- Researching the effects of Cyber Attacks and non ideal conditions on communications in UAS Swarms
- Produced optimization tool that found UAV swarming parameters which lead to 72% faster swarm formation time
- Published findings in AIAA/IEEE 2022: T. Neubauer and M. I. Akbas. "SOSUAS: Stability Optimized Swarming for Unmanned Aerial Systems." In the AIAA/IEEE Digital Avionics Systems Conference (DASC), September, 2022.
- Presented preliminary research at Embry Riddle Aeronautical University's Discovery Fair: https://commons.erau.edu/discovery-day/db-discovery-day-2021/poster-session/36