Alec Jackson

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Experience

Polaris Industries - Firmware Engineer & Tech Lead (2021 - present)

– Worked closely with electrical and mechanical teams on Polaris Ride Command products
– Worked closely with the manufacturing team to develop line processes and diagnose issues
– Developed Ride Command products from concept to production
– Led platform team (2023-Present) during critical product development phase
– Maintained, updated, and actively developed custom Yocto layers
– Owned Cyber Security implementation and open source license compliance

Projects

Polaris Ride Command (C, C++, Embedded Linux)

– Wrote hardware control for multiple subsystems (e.g. GPS, AM/FM Tuner, Cellular)
– Bootloader and kernel development for features and performance
– Developed hardware abstraction layers (HAL) to reduce future development costs
– Supported hardware development through hardware debugging efforts and board bring up
– Worked with Cyber Security team on embedded security features (e.g. Secure Boot, TEE, MAC)

KTM Connectivity Control Unit (Embedded Security)

– Maintained the Secure boot functionality on the Polaris developed KTM CCU
– Manufacturing software integration and production line support

Studious Engine (C++, GLSL, SDL2)

– A platform agnostic graphics engine based on OpenGL and SDL2
– Implemented features include: basic shaders, collision, and texture mapping.
– Integrated with CMake build system to support Linux, MacOS, and Windows.
– Source available at github.com/alec-jackson/studious-engine

NetBSD (C, NetBSD, i2c, device trees)

– Wrote a driver for NetBSD for the NXP PCF8523 real time clock.
– Prototyped feature to hold boot time in the RTC

Education & Development

Western Washington University, Bellingham WA

Bachelor of Computer Science

Core Languages & Skills

C, C++, Python, Yocto, Qt, Linux Kernel, Bootloaders, dts, Hardware Debugging, Device Drivers