Desone Burns II

Senior Software Engineer | Robotics Platforms & Embedded Systems | Embedded Linux, Python, C++, Hardware Integration

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Profile

Senior Software Engineer specializing in robotics platforms and embedded Linux systems. Experienced building production systems across the full stack—from hardware integration and operating systems to distributed services and modern web interfaces.

Key Achievements

- Designed and implemented a custom OTA deployment platform with binary delta updates, used internally across testing, software, and manufacturing teams and prepared for fleet deployment via USB upgrades.
- Built a Yocto-based embedded Linux distribution replacing CentOS across production robotics platforms.
- Architected containerized robotics platform with Docker and microservices supporting diagnostics, configuration, and fleet tooling.
- Led migration of large production robotics software stack from Python 2 → Python 3.

Experience

Senior Software Engineer — Seegrid (11/21 – Present)

- Started on the HMI team (Python, PySide/Qt), then led migration of full application stack from Python 2 → Python 3 with minimal disruption.
- Built a Yocto-based embedded Linux distribution replacing CentOS 7; evaluated Balena and Mender PoCs.
- Delivered a modern, scalable platform: containerized microservices, Ubuntu-based application stack, and custom package management service enabling OTA/USB upgrades with binary deltas.
- Implemented driver patches and integrated complex hardware including sensors, GPIO interfaces, and CAN devices.

Lead Software Engineer — Nikola (06/18 – 11/21)

- Developed and deployed Yocto-based embedded Linux OS for the HMI platform powering Class 8 hydrogen trucks and the NZT off-road vehicle.
- Selected system hardware (x86_64 motherboard and processor) and integrated peripherals including touch-screen/display systems, GPS sensors, BLE devices, speakers, and CAN interfaces.
- Implemented and calibrated vehicle audio system using touch-tone signal analysis for speaker tuning.
- Architected and implemented backend microservices supporting HMI features such as unlocking, climate control, and vehicle diagnostics.
- Extended the same OS platform across multiple vehicle programs with different UI frontends and service layers.
- Integrated proof-of-concept OTA solutions (Balena, Mender) to evaluate deployment approaches.

Software Engineer II — Raytheon (08/16 – 06/18)

- Developed automation and tooling supporting large-scale build and release workflows for defense software systems.
- Automated compilation and documentation pipelines using Python, Perl, and PowerShell.

Skills

Area	Technologies
Systems & Embedded	Embedded Linux • Yocto • Bootloaders • ARM • MCU • x86_64 • Systemd
Languages	Python • C++ • JavaScript • SQL
Robotics & Hardware	ROS2 • CAN • I2C • Sensor Integration • Robotics Platforms
Infrastructure	Docker • CI/CD Pipelines • OTA Updates (Mender, Balena) • Distributed Systems
Architecture	Systems Architecture • Containerized Applications • Linux Security
Web	React • Vue • HTML • CSS
Hardware Tools	PCB Design (KiCad) • Single Board Computers • FreeCAD