Daniel Robertson

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Open-Source Kernel Developer

Perseverant and purposeful software engineer with expertise in Linux kernel development, open-source collaboration, software performance and scalability, cross-team collaboration, and debugging and troubleshooting. Confidently tackle detail-oriented challenges, demystifying and integrating complex issues into broader projects and facilitating team member contribution and collaboration. Customer-focused engineer who stays close to the problem and generates solutions that exceed client expectations.

⇒ Linux Kernel Development

 \Rightarrow Open Source Collaboration

 \Rightarrow File System Development

 \Rightarrow Debugging & Troubleshooting

⇒ C Programming

 \Rightarrow Rust Programming

⇒ Network Protocols (IPv6)

 \Rightarrow Fuzz Testing

⇒ Technical Writing

⇒ Community Engagement

 \Rightarrow Cross-Functional Collaboration

 \Rightarrow Hypervisor Development

Open Source Highlights

Linux Kernel	 Authored and upstreamed the BMA400 Accelerometer IIO driver to the Linux kernel, enabling users to use the device with either I2C or SPI serial communication protocols. Improved system stability and robustness of bcachefs by identifying and resolving several kernel bugs found during fuzz testing.
Rust Compiler	 Closed critical gap in interoperability with C by implementing C va_list and variadic functions, enhancing ability to export C APIs. Optimized stability and functionality of Rust language by rectifying several internal compiler errors.
Smoltcp	 Implemented IPv6 support, refining Redox OS' networking capabilities. Assisted with project maintenance and coordinated contributors, fostering collaboration in open-source environment.
Mythril	 Designed host guest ACPI table parsing and building, enabling virtual machines to accurately detect and allocate system resources. Directed initial development efforts and delegated smaller tasks, cultivating teamwork among volunteers.

Work Experience

Senior Software Engineer, MOZILLA - San Francisco, CA (Remote)

Apr. 2022-Present

Non-profit software community promoting exclusively free software and open standards with 40K global active contributors. Best known for Firefox web browser, Thunderbird email client, Bugzilla bug tracking system, Gecko layout engine, and Pocket "read-it-later-online" service.

Hired to maintain the asynchronous panning and zooming (scrolling) component of Firefox web browser after volunteering on several Mozilla open-source projects, including Servo and the Rust Compiler.

- **Provided reliable product up-time** by resolving incoming bugs and collaborating remotely with 3 software engineer team members to triage, troubleshoot, and debug issues.
- **Upheld user functionality** by aligning patches with web specifications and writing C++ code to fine-tune performance and address problems.
- **Improved web compatibility** across multiple browsers by contributing to web speifications and test frameworks, with a focus on the handling of Blob's in the fetch specification.

Member of the Technical Staff, STAR LAB, A WIND RIVER COMPANY - Washington, DC Apr. 2019–Apr. 2022 Provider of cybersecurity solutions for protecting Linux-based systems in mission-critical environments.

Hired to maintain custom Linux kernel-based security module and implement 2 file overlay filesystems an authenticated filesystem and an encrypted file system. Allied with 3–4 technical staff members in managing high-security contracts.

- **Boosted performance and scalability** of complex implementations overfile systems, guiding customers through the integration process and debugging live systems.
- **Improved Linux security module performance** by developing kernel framework to evolve from experimental phase to tangible, sellable product.

Machine Intelligence Engineer, EMBEDDED INTELLIGENCE - Washington, DC

May 2018-Apr. 2019

Cutting-edge R&D company enhancing safety and security of Aenabled systems.

Joined industry contact and friend in supporting DARPA research projects by formulating secure data pipelines and web crawlers to gather large-scale current and historical data from public archives.

- **Informed strategic decisionmaking in research initiatives** by enhancing accuracy algorithms and designing pipelines that processed largescale datasets in partnership with machine learning experts.
- **Strengthened research proposals** that involved applying machine learning techniques to data collected from network traffic with indepth knowledge of network protocols.

Software Engineer, TRIPWIRE - Atlanta, GA

May 2016-Jun. 2018

Provider of cybersecurity risk management, helping organizations build security, compliance, and operational efficiency.

Recruited as network security product subject matter expert, using protocols to gather device information and evaluate risk of malicious intent and use. Collaborated with 20 software engineers and managers to remotely serve clients.

- **Upheld system reliability and minimized downtime for customers** by resolving complex memory issues in network devices using remote debugging techniques and code analysis to identify and fix problems.
- Maintained high system performance and customer satisfaction by providing on-call engineering support to troubleshoot and resolve urgent customer concerns.

ORISE Fellow, CENTERS FOR DISEASE CONTROL & PREVENTION (CDC) - Atlanta, GA Sept. 2014–May 2016 Provider of cybersecurity risk management, helping organizations build security, compliance, and operational efficiency.

Hired as a new graduate to pair with staff and receive handson research experience.

Cut data entry time by 50% by writing programs to automatically input survey data into forms, eliminating need for
double student entry.

Education

GEORGE MASON UNIVERSITY - Fairfax, VA

Master of Public Health in Epidemiology | Graduate Certificate in Biostatistics | Bachelor of Science in Community Health