

# Daniel Robertson

571-451-9241 | dan@dlrobertson.com  
@daniellutherrobertson  
@dlrobertson | https://dlrobertson.com

## Software Developer

- |                                  |                |                                   |
|----------------------------------|----------------|-----------------------------------|
| ⇒ Linux Kernel Development       | ⇒ C            | ⇒ Linux Kernel Debugging (ftrace) |
| ⇒ LSM Development                | ⇒ Rust         | ⇒ Network Protocols (IPv6)        |
| ⇒ File System Development        | ⇒ X86 Assembly | ⇒ eBPF                            |
| ⇒ Userspace Debugging (rr & gdb) | ⇒ Fuzz Testing | ⇒ Hypervisor Development          |

## Upstream Open Source Contributions

<b>Linux Kernel</b>	<ul style="list-style-type: none"><li>• <b>Authored and upstreamed the BMA400 Accelerometer IIO driver</b> to the Linux kernel, enabling use of the device with either I2C or SPI serial communication protocols.</li><li>• <b>Improved system stability and robustness</b> of bcachefs by identifying and resolving several kernel bugs.</li></ul>
<b>Rust Compiler</b>	<ul style="list-style-type: none"><li>• <b>Closed critical gap in interoperability with C</b> by implementing C va_list and variadic functions, enhancing ability to export C APIs.</li><li>• <b>Optimized stability and functionality of Rust language</b> by rectifying several internal compiler errors.</li></ul>
<b>Smoltcp</b>	<ul style="list-style-type: none"><li>• <b>Implemented IPv6 support</b>, refining Redox OS' networking capabilities.</li><li>• <b>Supported project maintenance</b> and coordinated contributors, fostering collaboration in open-source environment.</li></ul>
<b>Mythril</b>	<ul style="list-style-type: none"><li>• <b>Designed guest ACPI table building</b>, enabling virtual machines to accurately detect and allocate system resources.</li><li>• <b>Directed initial development efforts</b> and delegated smaller tasks, cultivating teamwork among volunteers.</li></ul>

## Work Experience

**Senior Software Engineer, MOZILLA**, MOZILLA - San Francisco, CA (Remote) Apr. 2022–Present

- **Implemented new web functionality** by implementing the new scrollend event implementation in Firefox.
- **Provided other teams with Linux Kernel expertise** for bugs that required significant knowledge of the internals of the Linux Kernel.
- **Improved web compatibility across multiple browsers** by contributing to web specifications and test frameworks, with a focus on Blob handling in the fetch specification.

**Member of the Technical Staff, STAR LAB, A WIND RIVER COMPANY** - Washington, DC Apr. 2019–Apr. 2022

- **Improved correctness of the file system implementation** by debugging and implementing fixes for issues found when guiding customers through the integration process.
- **Developed a custom eBPF LSM** written in Rust to enhance customers security posture.
- **Boosted Linux security module performance** by developing the customkernel LSM implementation, to evolve from experimental phase to tangible, sellable product.

- **Strengthened research proposals** by leveraging in-depth knowledge of network protocols.
- **Implemented network protocol parsers** in C to enable fast processing of network packets to be analyzed.

- **Improved 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.
- **Implemented new functionality to profile SMB servers** by creating new libraries making use of SMB over TCP.

- **Cut data entry time by 50%** by writing software utilizing computer vision to automatically input survey data into forms.

## *Education*

## *Conference Presentations*

Daniel L. Robertson, Jin-Mann S. Lin. Application of computer vision and machine learning to public health data validation. CDC/ATSDR Statistics Day. Atlanta, GA. September 22, 2015