Daniel Prilik

Software Engineer

Contact

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Skills

DEVELOPMENT

Rust
C++
C
JavaScript (ES6)
Typescript
HTML5 + CSS
React & React Native

EXPERIENCE WITH

Virtualization
Emulation
Containerization
Hardware Architecture
Kernel Development
KVM
CMake
Travis & Appveyor CI
Visual Studio
Unreal Engine 4
SDL2
Wwise

Education

University of Waterloo
BSE Software Engineering
2015 - 2020

Interests

Mechanical Keyboards
Massdrop ALT 65% with MX Blues. Contributor to QMK, the open-source keyboard firmware

Emulator Development
I keep a close eye on /r/emulation, and enjoy writing my own

Discovering New Music
Big fan of Alt Rock, Psych Rock, and [Future] Funk

PC Gaming & VR
Mainly PUBG, Rocket League, and Beat Saber. Excited for Cyberpunk 2077!

Employment

Microsoft - Azure IoT
Redmond, WA
Fall 2019

Software Engineering Intern - *Rust, Go*
- Implementing a new lightweight Container Runtime in Rust
- Understanding and implementing the OCI Image and Distribution specifications

Google - ChromeOS
Mountain View, CA
Winter 2019

Software Engineering Intern - *Rust, C*
- Contributed to *crosvm,* an open-source KVM-based hypervisor written entirely in Rust
- Implemented *virtio-fs*, a paravirtualized shared filesystem device that leverages FUSE and shared-memory to improve filesystem performance by 2x-8x over virtio-9p
- Worked with low-level Linux kernel APIs such as KVM, shared-memory mmaps, and sending file-descriptors over Unix Domain Sockets
- Gained experience backporting experimental kernel patches, and kernel debugging

Apple Inc - Platform Architecture
Cupertino, CA
Summer 2018

Software Engineering Intern - *C, C++, Objective-C, Python*
- Replaced hundreds of large, autogenerated modules with a single runtime-configurable module
- Deleted >100,000 LOC, reducing compile-times by 30%, and greatly improving maintainability
- Coordinated across teams to develop a long-term support plan for the module

Microsoft - The Coalition
Vancouver, BC
Winter 2017

Audio Engineering Intern on *Gears 5 - C++, Unreal Engine 4, Wwise*
- Orchestrated a large-scale audio data migration, reducing asset duplication by a factor of 11x
- Exposed Wwise functionality in the UE4 editor by creating custom UI components, substantially improving audio artist workflow

LCBO|next
Kitchener, ON
Summer 2017

Full Stack Web Developer - *React, React Native, node.js, Mapbox, Sass*
- Spearheaded the design and implementation of a React SPA
- Created graphs, charts, and visualizations using both popular libraries and custom components

Polar.me
Toronto, ON
Summer 2016

Front End Web Developer - *HTML5, Sass, JS, node.js*
- Designed and implemented web Ads for clients such as Engadget, Wired, and AOL
- Engineered and deployed a build system to streamline and automate Ad development

Projects

ANESE + wideNES - prilik.com/ANESE
- Created a cross-platform Nintendo Entertainment System (NES) emulator in C++11 and SDL2
- Designed wideNES, a novel technique to automatically map-out worlds and levels in NES games
- Documented the inner-workings of wideNES in a *detailed blog post*, inspiring others to port the technique to other systems (e.g: *WideGB* - Gameboy)

nfinite.space - https://nfinite.space
- Creating a cloud file-storage service to store files without requiring centralized data centers
- Implementing a protocol to securely and fairly rent disk space from connected users to store data
- Developed a proof-of-concept at Hack the North 2016, winning the AWS Sponsor Prize
- Actively improving and expanding the project into an Engineering Capstone Project

vrai-tracer - github.com/daniel5151/vrai-tracer
- Implemented a ray-tracer in Rust, as outlined in "Ray Tracing in One Weekend" by Peter Shirley
- Extended the ray-tracer with multi-threading support, additional primitives, and live scenes previews
- Utilized Rust's powerful type system to add a feature flag that transparently switches the project between dynamic and static dispatch (box traits vs. enums)

Awards

Winner of the Amazon Web Services (AWS) Sponsor Prize
Hack the North 2016, QHacks 2017
For work on *nfinite.space* and *fastify* [github.com/Melinysh/fastify] respectively