

Rhys Rustad-Elliott

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Professional Experience

Cmd

Software Engineer, Cmd Agent

Vancouver, British Columbia
Sep 2020 – Present

- Working on a team developing a lightweight in-userspace agent to collect information and report on command execution and other security events on Linux systems

Google

Software Engineering Intern, Chrome OS Kernel

(remote from) Vancouver, British Columbia
May 2020 – Aug 2020

- Spearheaded a wide-ranging investigation into the expanded use of the Linux kernel's transparent hugepages feature on Chrome OS to increase TLB coverage, reduce page table sizes and improve performance
- Coordinated with Google partners at Intel regarding using transparent hugepages to back the V8 heap in Chrome and fixing an i915 driver bug with serious user-visible consequences
- Replaced the dynamic memory allocator in Chrome with one that is transparent-hugepage-aware to determine performance gains and tradeoffs
- Wrote a script that scans memory on a Linux system, identifying regions that show potential for performance gains with hugepage use

Google

Software Engineering Intern, GCP Engineering Productivity

Kirkland, Washington
May 2019 – Aug 2019

- Extended the functionality of Google Compute Engine's internal integration testing framework for its KVM-based hypervisor to enable the retrieval of large debugging artifacts from guest virtual machines
- Reworked Google Compute Engine hypervisor integration tests for Windows guests to automatically save kernel-mode memory dumps upon a stop error (blue screen)
- Implemented a C++ geographic information library and Python wrapper to optimize latency in integration tests and other internal processes

Okta

Software Engineering Intern, Engineering Productivity

Toronto, Ontario
May 2018 – Jul 2018

- Implemented a horizontally-scalable system to analyze AWS costs using Redis-based distributed locking, identifying thousands of dollars in potential savings
- Created a Java/Spring Boot-based microservice and associated frontend to gather and display a variety of metrics on Okta's in-house CI system relevant to engineers and managers

Hootsuite

Software Engineering Intern

Vancouver, British Columbia
Jun 2016 – Aug 2016

- Reworked Hootsuite's Chrome extension to automatically detect HTTP security headers blocking its use
- Created a UI test for Hootsuite's bulk composer tool using an in-house Selenium-based testing framework

Projects

More at github.com/GunshipPenguin

Shallow Blue, a strong **chess engine** written in C++11

- Generates roughly 20 million chess moves per second using a fast bitboard-based move generator
- Accurately assesses black/white advantage using a sophisticated evaluation function
- Implements a highly-tuned principal variation search algorithm making use of several heuristics

Nescafé, an accurate **Nintendo Entertainment System emulator** written in C#

- Supports the majority of published NES games through emulation of vendor-specific cartridge hardware
- Emulates the NES's Ricoh 2A03 CPU, graphics chip and memory-mapped I/O

Education

University of Toronto

HBSc. (with distinction), Computer Science

Toronto, Ontario
2016 – 2020

Miscellaneous

- Teaching assistant for CSC209: Software Tools and Systems Programming at the University of Toronto (2019/20)
- University of Toronto ACM-ICPC Programming Contest team member, 2016 & 2017
- Perfect score, 2014 Junior Canadian Computing Competition