



Experience

- 2018 **Software Engineering Intern**, *Google*, Waterloo, ON.
May – Aug. Added various statistics and metrics to open-source GAPID Vulkan graphics API debugger.
 - Created overdraw visualization feature showing the number of fragment shader executions per pixel.
 - Analyzed Vulkan synchronization primitives to build GPU task dependency graph.
 - Statically parsed shader module call trees to determine what resources were used by the GPU pipeline.
 - Added tool showing GPU memory allocations for debugging memory usage and resource bindings.
- 2017 **3D Software Developer Intern**, *Side Effects Software, Inc.*, Toronto, ON.
Sep. – Dec. Working on adding tools and features to Houdini, Side Effect's 3D visual FX software.
 - Implemented FABRIK full-body inverse kinematics algorithm for large-scale crowd animation.
 - Added support for 3D Optical Flow enabling visual effects to track motion in an existing video.
- 2017 **Software Engineering Intern**, *Facebook, Inc.*, Menlo Park, CA.
Jan. – Apr. Worked on the Zstandard compression library development and integration in C.
 - Wrote Linux kernel patch adding support for Zstandard in SquashFS compressed filesystems.
 - Used SquashFS Zstandard support to optimize Facebook's static Python executables' size and speed.
 - Created full-format custom fuzzer to verify implementations conform to the Zstandard specification.
- 2016 **Software Engineering Intern**, *Wish – ContextLogic*, San Francisco, CA.
May – Aug. Worked on the Wish infrastructure in Python improving stability, monitoring, and efficiency.
 - Optimized most frequent endpoints, cutting latency by 60% and heavily reducing network usage.
 - Redesigned and migrated billion-row data collection to reduce MongoDB load and improve efficiency.
 - Developed exception monitoring platform, improving deployment safety and debugging efficacy.
- 2015 **Software Engineering Intern**, *Sunnybrook Research Institute*, Toronto, ON.
Jul. – Aug. Created, improved, and optimized software used in Medical Biophysics Research.

Projects

- 2018 **gba-rs**, [iburinoc/gba-rs](#)
Emulator for Nintendo GBA device written in Rust.
 - CPU module implements full ARM ISA as well as all functionality for GBA rendering unit.
- 2016 **GR Trace**, [iburinoc/gr_trace](#)
Real-time black hole ray-tracer using Rust and OpenGL.
 - Traces photons in fragment shader using RK4 for stable integration of relativity metric.
- 2015 **AnonymEyes**, *Winning Team, Hack the North*, [devpost.com/software/anonymeyes](#)
Location-based video streaming app for emergency response and evidence collection.
 - Designed and implemented custom video stream from Android to receiving server over UDP.
- 2015 **Flightsim**, [iburinoc/flightsim](#), [iburinoc/flightsim-cardboard](#)
3D flight simulator in C++, using OpenGL for rendering.
 - Ported to iOS for use as a Google Cardboard VR app.

Awards and Achievements

- 2015 **3rd Place Team**, **ACM-ICPC, ECNA Regional**, Windsor, ON.
International algorithm and data structure programming competition written by 130 collegiate teams.
- 2015 **Gold Medalist**, **Canadian Computing Olympiad**, *CEMC*, Waterloo, ON.
National algorithms programming contest written by over 3,500 secondary students.

Education

- 2015–2020 **Candidate for Bachelor of Software Engineering**, *University of Waterloo*.