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## 🔧 Skills

**Languages** Modern C++, Python, HLSL shaders, C#, Shell/Bash, SQL

**Libraries** CUDA, DirectX 11/12, ImGui, OpenGL, OpenCV, PostgreSQL, ZeroMQ, Flask, PyTest, Catch2

**Tools** Git, CMake, GDB, Visual Studio, Superluminal, NSight, RenderDoc, Pix, Clang AddressSanitizer, Valgrind, Emscripten

**Cloud** AWS: S3, Batch, Fargate, EC2, Cognito, Lambda, CodeArtifact, RDS, Docker, Terraform, Octopus Deploy

## 🏢 Employment History

### Darkvision Technologies

🕒 Aug 2017 - April 2023

📍 Vancouver, BC

**Technical Lead - Data Visualization** Dec 2022 - April 2023

- Collaborated with stakeholders and product owners to plan and prioritize technical work
- Provided technical leadership and mentoring, specializing in C++, graphics, image processing, and machine vision
- Created and assigned JIRA tickets for small team in addition to software development tasks listed below

**Senior Software Engineer** Aug 2017 - Nov 2022

- Responsible for C++17 development of Windows desktop, AWS Linux backend, and embedded Linux applications
- Developed patented rendering engine for volumetric ultrasound data using CUDA and DirectX 12
- Created Python library providing access to volumetric renderer for ML and cloud batch processing
- Developed custom GUI components with ImGui, CUDA, and DirectX 12 for graphing, analyzing and correcting volumetric data
- Implemented "source control" system for syncing and sharing proprietary binary data to cloud using PostgreSQL, AWS
- Developed machine vision algorithms for detecting features and anomalies in ultrasound data

### Cisco Systems Software Developer - Contract

🕒 Feb 2016 - March 2017

📍 Toronto, ON

- Primarily responsible for C++11 development on embedded Linux video transcode system
- Developed GStreamer plugin for drawing watermark graphics with DirectFB, Pango, and Cairo
- Implemented subsystem for parsing and sending IPV4 datagrams from MPEG transport stream
- Designed C++ interface for managing multiple independent TCP/IP routing tables via iproute2
- Created and maintained Python Flask web portal for configuring and deploying CentOS Linux virtual machines

### Sears Canada Business Analyst

🕒 Dec 2014 - Jan 2016

📍 Toronto, ON

- Developed C# .NET WPF applications for financial report generation and data management
- Deployed and maintained MS SQL server for credit card sales data

## 📄 Patents

### Accurate rendering of acoustic images

Zillinger, Eric. (2023). US. Patent No.17151321

### Surface extraction for ultrasonic images using path energy

Rae, Andrew J. and Zillinger, Eric. (2022). US. Patent No.17035796

## 🎓 Education

**University of Waterloo** 2014 • BAsC - Honours Electrical Engineering, Co-op

## 🎵 Interests & Projects

- See the source for this resume, my C++20→WebAssembly Gameboy Emulator, and other projects at [github.com/ezillinger](https://github.com/ezillinger)
- From April 2023 to March 2024 I cycled 20,000 km across Europe and Asia - see my personal website [zillinger.ca](https://zillinger.ca) for details
- In my free time I enjoy skiing, rock climbing, cycling, playing guitar, and producing bad music