

Jonathan Chung



github.com/chjon



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(647) 786 - 9368

Skills

Languages: C++, C, JavaScript, Java, HTML5, CSS, Python

Technologies: DirectX 12, OpenGL, Firebase, Redis, Flask, Linux, DynamoDB, S3, Git, Perforce

Experience

- 2019 - Present **Undergraduate Research Assistant**, *University of Waterloo* (Waterloo, ON)
- Assisted Dr. Vijay Ganesh with empirical research investigating CDCL SAT solver efficiency
- Designed and developed tools and scripts to test hypotheses about solver performance
 - Experimented and reported on the relationships between problem parameters and solving time
- 2020 **CAD Software Architecture Intern**, *NVIDIA Corp.* (Santa Clara, CA)
- May - Aug Worked on features and optimizations in C++ for GPU performance analysis tools
- Profiled and analyzed tools to identify performance bottlenecks and optimization opportunities
 - Parallelized computation and file I/O operations to reduce overall program execution time by 60%
 - Modified existing tools to process and generate performance reports for a new binary data format
- 2019 **Software Development Intern**, *Darkvision Technologies Inc.* (Vancouver, BC)
- Sep - Dec Worked on data visualization tools and features in C++ for an ultrasound-based 3D imaging device
- Implemented a tiled HEVC video codec to optimize GPU encoding and maximize throughput
 - Migrated a visualization tool to DirectX 12 HLSL to improve performance and maintainability
 - Created a specialized graphing tool to correlate datasets using immediate mode graphics
- 2019 **Game Programmer Intern**, *Behaviour Interactive* (Montreal, QC)
- Jan - Apr Worked on backend features for multiple video games in a RESTful microservice architecture
- Restructured object collection and reward systems using JavaScript (TypeScript) with Node.js
 - Designed a rich presence system to broadcast and log player activity with Redis and DynamoDB
 - Implemented first-party microtransactions for purchasing game items using Nintendo's REST API
- 2018 **Software Developer Intern**, *Universe Projects Inc.* (Toronto, ON)
- May - Aug Worked on adding features and improving infrastructure for a cross-platform video game
- Redesigned item collection infrastructure for a data-driven content generation system using Java
 - Implemented a system for synchronizing game objectives using Google Cloud Datastore
 - Built GUI components and developed a configurable visual effects system using LibGDX
- 2016, 2017 **Software Development Intern**, *New York Theological Education Centre* (Markham, ON)
- Jul - Aug Developed a library management application using MySQL and VBA
- Developed a library database system to manage thousands of books and hundreds of users
 - Built an application for borrowing books, identifying overdue books, and calculating fines

Education

- 2017 - 2022 **Candidate for B.ASc**, *Honours Computer Engineering*, University of Waterloo
- Cumulative Average: 91.62% | Dean's Honours List (6 Terms) | First in Class Engineering Scholarship

Projects

- Mar 2019 **InfiniteChess**, chjon/InfiniteChess Fairy chess on an infinite board written in C++, using OpenGL
- Sep 2017 **BlockGame**, chjon/BlockGame 2D physics engine and block-based sandbox game written in Java