

# Daniel Haoxuan Zhang

## Software Development Engineer

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### SKILLS

- **Languages:** Python, Java, C, C++, SQL, HTML, CSS, JavaScript, DOT, Scala, Racket, LISP, Scheme, Turing, Bash, etc.
- **Technologies:** LLVM, TensorFlow, PyTorch, Pandas, Graphviz, Android, Hive, Spark, Hadoop, Node, Docker, etc.

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### EDUCATION

#### University of Waterloo

Waterloo, ON, Canada

#### Bachelor of Computer Science (GPA 4.0)

Sep.2017 – Apr.2022

Majored in Computer Science with Business Specialization Honours Co-op Program

- **Courses:** Artificial Intelligence, Distributed Systems, User Interfaces, Database, Human-Computer Interaction, etc.

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### WORK EXPERIENCE

#### Intel

Toronto, ON, Canada

#### FPGA Software Development Engineer

May.2022 – Present

- Engineering open-access FPGA technologies within OneAPI, CoreDLA, DPCPP, SYCL, HLS, OpenCL, etc.
- Working within multiple High-Level Design teams focusing on artificial intelligence & deep learning neural accelerator, open access system integration software, core datapath compiler and data reporting and usability
- Instituted the majority of new compiler SPIRV-Registry extensions added to Khronos Group's GitHub
- Initiated the support for new FPGA families into OneAPI compiler, including Agilex 5 & 7, Cyclone IV and Max 10
- Developed the Board Awareness feature independently into CoreDLA to allow automatic Quartus IP transferability
- Cultivated the Abstract Netlist usability project with comprehensive JSON data to be OneAPI's new report output
- Implemented Device Global feature in system integrator to support inter-module kernel memory communication

#### Huawei Technologies Canada

Markham, ON, Canada

#### Big Data Platform Developer

Jan.2021 – Dec.2021

- Implemented core features including Heuristic Index, Memory Connector, Star Tree Cube, Spill to Disk, Query Optimizer and others within openLookEng, Huawei's open-source data virtualization engine
- Improved low latency performances by over 60% for iceberg queries with select multi-threaded query performances using tables with 10+ billion data entries
- Integrated concepts of data preloading; supported Bitmap, Minmax, Bloom, BTree and customizable index types, split, strip and row filtering, functional and logical operators, and fail-safe record load and delete mechanisms

#### CGI

Markham, ON, Canada

#### Developer

Sep.2019 – Apr.2020

- Developed Wealth360 platform Java applications and pioneered rigorous automatic Mockito infrastructures
- Transformed crucial multi-thread programs to use volatile variables and classes to enhance memory access safety
- Innovated module virtualization throughout the backend mainframe to improve code scalability and reusability

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### PROJECTS

#### WatDFS

- Implemented a distributed file system invented by the University of Waterloo capable of supporting remote client-to-host server and file manipulation with RPC communication techniques and FUSE integrations

#### Cryptocurrency Market AI Prediction Tool

- Developed a Bitcoin market prediction AI using supervised machine learning, pandas neural algorithms and Spark ML big data algorithms to analyze historical prices and sentiment analysis data from SwiftAPI's Reddit feeds

#### Rubik's Cube Solver

- Programmed Java executables to retrieve cube state and compute the optimal solution within 20 moves using God's Algorithm for Rubik's Cubes, then translated to an Arduino with 6 DC-motors attached to solve the cube