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, Node, React, Angular, Graphviz, Android, Hive, Spark, Hadoop, Docker, Git, etc.

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.

WORK EXPERIENCE

Intel Corporation
Toronto, ON, Canada

FPGA Software Development Engineer May.2022 – Present

- Engineering open-access FPGA technologies for products including OneAPI, CoreDLA, DPCPP, SYCL, HLS & OpenCL
- Working within multiple High-Level Design teams focusing on artificial intelligence & deep learning neural accelerator, core datapath compiler, open access system integration software and data reporting and usability
- Instituted all 10 of the new compiler SPIRV-Registry extensions added to Intel's and Khronos Group's GitHub repos
- Established the compatibility for new FPGAs into OneAPI's 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 full-stack 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
- Streamlined system integrator codebase and achieved a 66% reduction in code lines for enhanced maintainability

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 (Consultants to Government and Industry)
Markham, ON, Canada

Developer Sep.2019 – Apr.2020

- Developed Wealth360 platform Java applications and pioneered over 90% of the rigorous 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

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