Isidor Kaplan

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Education

University Of Toronto Sept. 2019 – May 2024
Bachelor of Applied Science in Computer Engineering *Toronto, ON*

- Obtained *4.0/4.0* Cumulative GPA and *96.1%* Cumulative Average
- Awarded *Top Student Award* from Dept of Electrical and Computer Engineering (2020-21 and 2021-22)
- Awarded Charles Edwin Trim (2021), BFMI Sesquicentennial Trust (2021), and In-Course (2020) *Scholarships*
- Selected for prestigious First-Year Summer *Fellowship* (2020)

Experience

Incoming Software Engineering Intern June 2023 – August 2023
Hudson River Trading *New York, NY*

FPGA Engineer Intern May 2022 – May 2023
Intel *Toronto, ON*

- Optimized next-generation FPGA routing architecture through iterative design and simulation analysis, resulting in improved max frequency and area, validated by comprehensive testing on large design suites.
- Developed high-performance C++ graph tools to operate on FPGA routing architecture representations, allowing for the extraction of important features, validation of changes, and approximating routability.
- Automated visualization of complex data in a user-friendly Python tool, enabling rapid analysis of internal simulation results and significantly reducing manual data extraction and plotting time.

Teaching Assistant Sept 2021 – April 2023
University Of Toronto *Toronto, ON*

- *Computer Organization*: Introduce students to 32-bit ARM v7 assembly for ARM Cortex A9 processor, processor design in Verilog, and bare-metal embedded programming on the Intel DE1-SOC Computer
- *Software Communication & Design*: Supervise and grade 5 groups of students in a competitive design project in C++. Includes NP-C graphing problems, software optimization, and designing a graphical front-end
- *Programming Fundamentals*: Introduce students to the C++ programming language, object-oriented programming, data structures, and complexity analysis

Software Developer Intern May 2021 – August 2021
Rocscience *Remote*

- Redesigned CPillar, a $1000/license C++ geological analysis software, enabling the first major update in years
- Prototyped unsupervised ML techniques to extract material types from imagery for Rocfall2 and Rocfall3

Machine Learning Researcher May 2020 – August 2020
University Of Toronto – iQua Research Group *Remote*

- Developed advanced reinforcement learning models using PyTorch, applied to congestion control, edge computing, and network-adaptive coding, resulting in the publication of two conference research papers.

Technical Skills

Languages: C/C++, Python, Java, System-Verilog, ARM Assembly, MATLAB
Hardware Courses: Computer Architecture, Computer Organization, Digital Electronics, Digital Systems
Software Courses: Algorithms & Data Structures, Operating Systems, Machine Learning, Programming Courses
Math Courses: Multivariable Calculus, Probability, Linear Algebra, Control Theory, Complex Analysis & ODEs

Publications

Multi-Agent Deep Reinforcement Learning for Cooperative Edge Caching via Hybrid Communication (Accepted) IEEE ICC-SAC 2023
Fei Wang, Salma Emara, Isidor Kaplan, Baochun Li, Timothy Zeyl

Ivory: Learning Network Adaptive Streaming Codes IEEE IWQoS 2022
Salma Emara, Fei Wang, Isidor Kaplan, Baochun Li

Hybrid Algorithm Based on Machine Learning and Deep Learning to Identify Ceramic Insulators and Detect Physical Damages IEEE CEIDP 2021
Youssef El Haj, Ruth Milman, Isidor Kaplan, Ali Ashasi