

Isidor Kaplan

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EDUCATION

University Of Toronto

Sept 2019 – June 2024

B.A.Sc 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 (2022), BFMI Sesquicentennial Trust (2021), and In-Course (2020) *Scholarships*
- Selected for prestigious First-Year Summer *Fellowship* (2020)

EXPERIENCE

Incoming Core Developer 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 \$995/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

ML/AI Research Intern

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