

# Isidor Kaplan

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## EDUCATION

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### 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

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### 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 \$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

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**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

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### 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*