

# 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 95.3% Cumulative Average
- Awarded the *Adel S. Sedra Gold Medal* for highest grades in Computer Engineering, Class of 2024
- Awarded Annual *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*

## EXPERIENCE

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### FPGA Engineer

June 2024 - Present

*Headlands Technologies*

*Chicago, IL*

- Engineer low-latency trading infrastructure, improving stability, scalability, and performance

### Software Engineering Intern

June 2023 – August 2023

*Hudson River Trading*

*New York, NY*

- Design modern C++ multi-threaded, high-performance, networked, timing-accurate market-simulation tools
- Extend proprietary C++ exception-handling framework, featured [here](#), with improved stack-tracing capabilities

### FPGA Engineer Intern

May 2022 – May 2023

*Intel*

*Toronto, ON*

- Optimized next-generation FPGA routing architecture improving simulations results in VPR and Quartus
- Developed high-performance C++ graph tools to operate on FPGA routing architecture representations
- Developed Python tool for automated complex data visualization, reducing analysis time for experiments

### Teaching Assistant

Sept 2021 – April 2024

*University Of Toronto*

*Toronto, ON*

- *Operating Systems*: Concurrency, synchronization, deadlock, CPU scheduling, memory management, file systems
- *Computer Organization*: ARM v7 assembly for Cortex A9, Verilog soft-core CPUs, embedded programming
- *Programming Fundamentals*: C++ language, object-oriented programming, data structures, and complexity
- *Software Comm & Design*: Supervised groups of students in competitive design project course in Modern C++

### Software Engineering Intern

May 2021 – August 2021

*Rocscience*

*Toronto, ON*

- Redesigned CPillar, a \$995/license C++ geological analysis software, enabling the first major update in years

### ML/AI Research Intern

May 2020 – August 2020

*University Of Toronto – iQua Research Group*

*Toronto, ON*

- 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

## SELECTED COURSES

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**Software Courses:** Algorithms & Data Structures, Operating Systems, Machine Learning, Compilers, Security

**Hardware Courses:** Computer Architecture, FPGA Architecture, Computer Organization, Digital Electronics

**Math Courses:** Multivariate Calculus, Probability, Linear Algebra, Control Theory, Complex Analysis, Economics

## PUBLICATIONS

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### Multi-Agent Deep Reinforcement Learning for Cooperative Edge Caching via Hybrid Communication

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*