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 *95.3%* 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*

EXPERIENCE

Incoming FPGA Engineer — June 2024
Headlands Technologies — *Chicago, IL*
- Will be designing high-performance low-latency FPGA-based trading systems

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 propriatary 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 — *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

SELECTED COURSES

Software Courses: Algorithms & Data Structures, Operating Systems, Machine Learning, Compilers, Programming
Hardware Courses: Computer Architecture, FPGA Architecture, Computer Organization, Digital Electronics
Math Courses: Multivariate Calculus, Probability, Linear Algebra, Control Theory, Complex Analysis, Economics

PUBLICATIONS

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