Isidor Kaplan

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Education

University Of Toronto Sept 2019 – June 2024 (Expected)
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*

Experience

Incoming FPGA Engineer July 2024
Headlands Technologies *Chicago, IL*

- Will be designing RTL and modern C++ for high-performance low-latency FPGA 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 – Dec 2023
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