





Isidor Kaplan

-  isidor.kaplan@utoronto.ca
-  linkedin.com/in/isidorjkaplan
-  github.com/isidorjkaplan
-  isidorkaplan.ca/transcript.pdf

Education

Bachelor of Applied Science, Computer Engineering | University of Toronto **2019 - 2024**

- **4.0/4.0** Cumulative GPA / **96.1%** Cumulative Average / **#1** Top Student Award

Professional Experience

FPGA Fabric Architect Intern | Intel Corporation **May 2022 - Present**

- Design and research next-generation routing architecture for Intel high-performance FPGAs

Teaching Assistant | University of Toronto **Sept 2021 - April 2022**

- **ECE243 Computer Organization**: Introduce processor design in Verilog and assembly programming in ARM A9 Assembly.
- **ECE244 Programming Fundamentals**: Introduce OOP, Data Structures, Computational Complexity, and the C++ Programming Language.

Software Developer Intern | Rocscience Inc **May 2021 - August 2021**

- Reimplemented a Major legacy C++ commercial software for stability analysis from scratch.
- Surveyed state of the art Unsupervised Machine Learning Image Segmentation.

Academic Researcher | iQua Research Group **May 2020 - August 2020**

- Applied deep reinforcement learning to networking problems, such as congestion control, edge computing and network-adaptive coding.

Engineering Projects

See all projects at: <https://www.linkedin.com/in/isidorjkaplan/details/projects/>

Processor Design Project | Project

- Designed System-Verilog 16-bit, 8-register, interrupt-enabled and pipelined processors.

Version 1: <https://github.com/isidorjkaplan/ProcessorPublic>

Version 2: <https://github.com/isidorjkaplan/PipelinedProcessor>

CPillar | Rocscience Inc

- Refactored CPillar from the ground-up in C++ / MFC allowing for first major update in years.

Update Notes (5.005): <https://www.rocscience.com/support/cpillar/release-notes>

Deep Reinforcement Learning Framework | iQua Research Group

- Designed PyTorch DRL framework used for research papers at iQua Research Group

Project GitHub: <https://github.com/isidorjkaplan/DRL>

Realtime Online-Learning Deep Video Compression | Project

- Designed video compression scheme that learns in real-time with ~23x compression

Project GitHub: <https://github.com/isidorjkaplan/OVAL>

Map Project | Project

- Implemented large-scale Google-maps inspired UI / backend program in C++
- Developed simulated-annealing based heuristics for NP-C graphing problems.

Publications

- **Ivory: Learning Network Adaptive Streaming Codes**

Salma Emara, Fei Wang, *Isidor Kaplan*, Baochun Li. **IWQoS 2022**

- **Hybrid Algorithm Based on Machine Learning and Deep Learning to Identify Ceramic Insulators and Detect Physical Damages**,

Youssef El Haj, Ruth Milman, *Isidor Kaplan*, Ali Ashasi. **CEIDP 2021**

Awards

Edward S. Rogers Sr.
Department of Electrical
and Computer Engineering
Top Student Award
(2020-21, 2021-22)

Charles Edwin
Trim *Scholarship* **(2022)**

BFMI Sesquicentennial
Trust *Scholarship* **(2021)**

In-Course
Scholarship **(2020)**

First-Year *Fellowship* **(2020)**

Deans List **(2019 - Present)**

Technical Skills

Technical Tools

- C / C++
- Python
- Rust
- Java
- ARM Assembly
- System Verilog / RTL
- Quartus / ModelSim
- MATLAB

Industry Knowledge

- Operating Systems
- Reinforcement Learning
- Computer Vision
- Software Design
- Embedded Systems
- FPGA System Design