





# Isidor Kaplan

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## Education

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

- **4.0/4.0** Cumulative GPA / **96.1%** Cumulative Average / **#1** Top Student Award (Twice)
- **Focus:** Computer Architecture, Software Engineering, Hardware Engineering, Machine Learning
- **Certificates** (: Artificial Intelligence Certificate, Engineering Business Certificate)

## Professional Experience

**Computer 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:** ARM A9 Assembly, Processor Design (Verilog)
- **ECE244 Programming Fundamentals:** C++, OOP, Data Structures, Complexity

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

- Reimplemented a Major legacy C++ commercial software for stability analysis from scratch.
- Applied Unsupervised Machine Learning Image Segmentation.

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

- Applied deep reinforcement learning to congestion control, edge computing and adaptive coding

## Engineering Projects

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

**Processor Design Project** | <https://bit.ly/3NmP8K4> / <https://bit.ly/3zsc8l8>

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

**CPillar** | <https://bit.ly/3zvHiYQ>

- Redesigned CPillar from the ground-up in C++ allowing for first major update (v5.005) in years.

**Deep Reinforcement Learning Framework** | <https://bit.ly/3UaLF38>

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

**Realtime Online-Learning Deep Video Compression** | <https://bit.ly/3sJGM5G>

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

**Map Utility** | <https://bit.ly/3UaqoH2>

- 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
- Java
- Rust
- ARM v7 Assembly
- System Verilog / RTL
- Quartus / ModelSim
- MATLAB

### Industry Knowledge

- Computer Architecture
- Machine Learning
- Reinforcement Learning
- FPGA System Design
- Software Design
- Embedded Systems
- Operating Systems