Isidor Kaplan

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Education

Bachelor of Applied Science, Computer Engineering | University of Toronto
- **4.0/4.0 cGPA** 5 Terms / **96.2%** Cumulative Average *2019 - 2024*

Professional Experience

FPGA Fabric Architect Intern | **Intel PSG** *May 2022 - August 2023*
- Incoming FPGA Fabric Architecture PEY Intern with Intel PSG starting May 2022

Teaching Assistant | **University of Toronto** *Sept 2021 - May 2022*
- **ECE243** *Computer Organization* (Winter 2022): Introduce processor design in Verilog and assembly programming in ARM A9 Assembly.
- **ECE244** *Programming Fundamentals* (Fall 2021): Introduce OOP, Data Structures, Computational Complexity, and the C++ Programming Language.

Software Developer Intern | **Rocscience Inc** *Summer 2021*
- Reimplemented *CPillar*, a major MFC C++ software for stability analysis.
- Surveyed state of the art Unsupervised Machine Learning Image Segmentation.

Academic Researcher | **iQua Research Group** *Summer 2020*
- Helped to design and apply deep reinforcement learning algorithms under the supervision of Prof. Baochun Li within the context of 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/

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

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

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

Mapper Project | **Project**
- Implemented large-scale Google-maps inspired program in C++

Project GitHub: https://github.com/isidorjkaplan/MapperPublic

Publications

- **Ivory: Learning Network Adaptive Streaming Codes**
  Salma Emara, Fei Wang, *Isidor Kaplan*, Baochun Li. **IWQoS 2022** (Accepted)
- **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**

Profile

Computer Engineering student at the University of Toronto with a focus in computer hardware, machine learning, and software design.

Awards

Edward S. Rogers Sr. Department of Electrical and Computer Engineering Top Student Award (**2021**)

BFMI Sesquicentennial Trust Scholarship (**2021**)

Deans List (**2019-2021**)

In-Course Scholarship (**2020**)

First-Year Fellowship (**2020**)

Technical Skills

Technical Tools
- C / C++
- Python
- Java
- MATLAB
- ARM Assembly
- Quartus / ModelSim
- Verilog / System Verilog
- PyTorch

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