Isidor Kaplan

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Education

Bachelor of Applied Science, Computer Engineering | University of Toronto
- **2019 - 2024** Including PEY Co-Op
- **4.0/4.0 cGPA** Cumulative (5 terms) **/ 96.2%** Cumulative Average

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

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**
- Rewrote CPillar from the ground-up in C++ / MFC allowing for first major update in years.
- Incorporated best practices of Object Oriented Design and User Interface Design

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 a Verilog 16-bit, 8-register, interrupt-enabled processor.
- Designed processor assembly language and implementation
- Wrote assembly programs using memory-mapped I/O (VGA, buttons, LEDs)

Project GitHub: **https://github.com/isidorjkaplan/ProcessorPublic**

Mapper Project | **Project**
- Implemented large-scale Google-maps inspired program in C++
- Designed user-friendly interface for interacting with complicated functionality
- Incorporated sophisticated solution for TSP using Simulated Annealing

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

Publications

- **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 interests in machine learning, software development, and computer hardware.

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

Programming Languages
- C / C++
- Python
- Java
- MATLAB

Hardware
- ARM Assembly
- Verilog
- Quartus / ModelSim
- FPGA

AI / ML
- Reinforcement Learning
- Computer Vision
- PyTorch