

# Lukas Schmidt

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## Education

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### Master of Applied Science, Electrical and Computer Engineering

University of Waterloo

May 2023

- Generalized the  $t$ -test to Multivariate  $t$ -distributions by integrating over the Mahalanobis distance
- Created a Bayesian novelty detection model by using posterior predictive t-tests for hardware validation

**Thesis:** Novelty Detection for SILGEO Hardware Assurance

### Bachelor of Mathematics, Honours Pure Mathematics

University of Waterloo

Minor in Combinatorics & Optimization

December 2019

## Work Experience

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### Qualcomm

DevOps Engineer

Markham, ON

2023 - Present

- Currently maintaining continuous integration services, which enable on-device performance regression testing for over 200 developers working on the NPU compiler
- Developed a Python API that runs workloads seamlessly across Android, QNX, and Windows devices
- Scaled a device farm of  $\sim 200$  mobile devices to  $\sim 600$  mobile, compute, and auto devices
- Created, deployed and maintained monitoring solutions used to rapidly address service outages and scaling issues

**Skills:** Python, Jenkins, Ansible, NFS, LSF, Docker, Splunk

### Real-time Embedded Systems Lab

Waterloo, ON

2020 - 2023

Graduate Assistant

- Utilized 1TB of data to develop a novelty detection method that fully automated the operation of Palitronica's hardware validation platform
- Wrote a full stack demo, including visualizations, and presented demo to clients on behalf of Palitronica

**Publication:** Microcircuit Defect and Counterfeit Detection via Silicon Geometry

Research Assistant

2016 - 2017

- Evaluated various forms of Hidden Markov Models for use in real-time anomaly detection of time-series data
- Successfully detected anomalies in 1TB of time-series data using autoencoders
- Wrote a full stack app for interactive data mining using timed regular expressions with visualizations

**Publication:** A Tool for Mining Timed Regular Specifications from System Traces

### HealthIM

Software Developer

Kitchener, ON

2018

- Rebuilt the customer-facing web app with a requested framework (Angular 1 → React Redux)

### Centre for Advancement of Trenchless Technologies (CATT)

Waterloo, ON

2018

Software Developer

- Implemented CATT's models to estimate the carbon footprints of wastewater treatment plants

## Projects

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- **Salz:** Writing the game engine of an bot programming game based on Halite and Conway's Game of Life
- **NixOs:** Personal system and user level Nix configurations
- **NixPkgs:** Packaged scikit-rf (an RF/Microwave engineering package) for NixPkgs