Daniel Thero

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Education

University of Waterloo **Sep. 2019 – Aug. 2024**
Computer Engineering, Honours, Co-op, GPA 3.7 *Waterloo, ON, Canada*

Technical skills

Languages: Python, C++, C, Java, R, SQL, Lisp, Typescript, JavaScript
Tools/Frameworks: Keras, TensorFlow, PyTorch, Hadoop, Django, Flask, React, GTest
Other: Git, Linux, Conda, Docker, Bash, Jira, Jenkins, ELK Stack, Firebase, QNX

Experience

ML Test Engineer, Intern **Jan. 2024 – Present**
Groq Inc *Mountain View, CA, United States*

- Designed **inference accuracy tests** for **Machine Learning models**, including **Facebook OPT**, **BERT Large**, **GoogleNet**, **FFN**, and **deterministic matrix multiplication**.
- Wrote **Python** and **shell script wrappers** to automate **stability checks** and performance distribution modeling of **JSON** data in **beta stage optimization**.
- Patched an exposed **OAuth token** and **API key** in a **Google Sheets API call** by using **BigQuery** instead, with **Sheets** as a **frontend interface**.

Cyber Operations Specialist, Intern **Jan. 2023 – Apr. 2023**
Department of National Defense *Gatineau, QC, Canada*

- Employed an **ELK stack** on **Docker** with custom **Grok** patterns to aggregate aircraft error logs.
- Configured a **Logstash** pipeline to store data with **Elasticsearch** and present with **Kibana**.

Software Engineer (RTOS), Intern **May 2022 – Aug. 2022**
Huawei Technologies *Kanata, ON, Canada*

- Optimized **HarmonyOS 4.0 microkernel** on **Yocto Linux**, emulated with **QEMU**.
- Implemented an **RB-tree** for **thread-queueing** to drastically reduce **futex** wait times.
- Stress-tested scheduling on **Raspberry Pi** to isolate **RPC calls** with **nanosecond-accuracy**.

Embedded Software Developer, Intern **Sep. 2021 – Dec. 2021**
Ford Motor Company *Kanata, ON, Canada*

- Developed **C++ production code** for 2022 Ford vehicles, including **GoogleTest unit tests** on **QNX Momentics**, deployed onto hardware using **automotive ethernet**.
- Implemented improvements on the reception of **NFC** (near-field communication) protocol pings.

Open-Source Developer, Intern **Jan. 2021 – Apr. 2021**
University of Waterloo *Waterloo, ON, Canada*

- **Java** contributor for **Apache Drill SQL query engine** with **Bash** and **Maven**; configured **SSL**.
- Used **Postgres** and **Jinja** to automate reporting and analysis of **Open Government datasets**.

Projects

Fine-Tuned LLM Code Translator using GPT-2 **(Python, PyTorch, Transformers)**

- A causal language model that converts code from Python to JavaScript, focusing on idiomatic structure. Uses the Hugging Face Transformers library, tracked with TensorBoard.

Deep-Learning Classifier for Insulator Defects **(Python, Keras, scikit-learn)**

- A supervised Convolutional Neural Network using a pretrained Keras model and a TensorFlow backend to grade the hydrophobicity of preprocessed images of insulators with 99.6% accuracy.

Neural Network from scratch **(Python, NumPy, Matplotlib, pandas)**

- Uses a Self-Organizing Map and 90,000 neurons to solve the traveling salesman problem.

Intelligent Chess Engine **(Python, Tkinter)**

- AI chess agent using alpha-beta pruned minimax trees and heuristic board evaluation 6 layers deep.