John Dykes

Full Stack Web and AI Developer
Ottawa, Ontario
+1 613 854 8735
johndykes.dev
98johndykes@gmail.com

Education

Master of Mathematics	University of Waterloo	Jan. 2018 – Dec. 2018
Bachelor of Mathematics, Honors with High Distinction	Carleton University	May. 2014 – Dec. 2017

Employment Experience

LangPanel

May 2024 – Present

Founder/Software Engineer

- Developing AI powered translation application for comics
- OCR AI model designed and trained using PyTorch and proprietary text rendering library.
- Models run in the browser with WebGPU, reducing costs

Canadian Centre for Cyber Security

Sept. 2020 – May 2024

Cryptanalyst

- Implemented and evaluated cryptographic standards and algorithms
- Maintained recommendations on the use of cryptographic algorithms within the Government of Canada
- Other top secret cryptographic research

Communications Research Centre Canada

Nov. 2019 – Sept. 2020

Computer Research Programmer

- Applied machine learning and Geo-computation to Telecommunications Data, including estimating the interference that cellular towers have on each other
- Attended a 1-week long training course on machine learning using TensorFlow

University of Waterloo and Carleton University Sept. 2017 – Dec. 2018

Teaching Assistant

- Marked assignments for undergraduate math classes
- Held office hours to answer student questions
- Taught tutorials for undergraduate math courses

Programming Skills

Most Proficient Technologies

- **Languages:** JavaScript, Typescript, Python, Rust, C, Bash
- **Frontend technologies:** HTML, CSS, React JS, Tailwind CSS, Vite, Web Workers, React Router, React Query, React Server-Side Rendering (NextJS and Vike frameworks)
- **Backend technologies:** Cloudflare, Google Cloud Platform (particularly Cloud Storage, Cloud Run, Cloud Build, Compute Engine), Fastify, Docker, PostgreSQL, Supabase
- **Machine Learning:** PyTorch, ONNX (including ONNX runtime web), Hugging Face, Darknet YOLO library, Web Datasets Python library, OpenAI and Gemini LLM APIs.

Other Programming Related Skills

- Strong knowledge of cryptography and network security, including cryptographically secure hash functions, block ciphers, digital signatures, post quantum cryptography, HTTPS
- Strong knowledge and familiarity with Linux command line and bash scripts
- Strong knowledge of Transformer architecture in machine learning. Experience creating custom transformer models with PyTorch

Other Achievements

- Achieved the highest level on the TOPIK (Test of Proficiency in Korean) exam administered by the South Korean Ministry of Education
- Completed Grade 10 piano performance examination
- Canadian Chess Federation rating: 2000

Awards and Honors

- Carleton University Dean’s Honour List student 2015-2018
- Carleton University Claude Bissel Scholarship 2015
- Carleton University A. Davidson Dunton Scholarship 2016, 2017
- Senate Medal for Outstanding Academic Achievement 2018