

# Jordan Lau

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## Education

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University of Ottawa

September 2021 - Present

**Honours Bachelor of Science in Computer Science and Minor in Linguistics.**

- CGPA of 9.74 (10-point scale).

## Work Experience

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National Research Council of Canada (NRC)

May 2025 - Present

**Machine Learning Developer Intern**

- Developed and evaluated features for an open-source **PyTorch Lightning** Text-To-Speech Toolkit, geared towards under-resourced languages.
- Trained models on cloud-based GPU clusters, scheduling jobs with **Slurm** and tracking progress with **TensorBoard**.
- Tracked tasks, reviewed code and performed PRs on **GitHub**, maintaining clean **Git** workflow.

Financial Transactions and Analysis Centre of Canada (FINTRAC)

May 2024 - August 2024

**Software Developer Intern**

- Independently identified issues, created tickets in **Azure DevOps**, developed solutions in **JavaScript** with **Vue.js**, validated solutions against business requirements and submitted **Git** PRs.
- Designed improved code snippet copy buttons that help the user identify exactly what code they are copying, using the **TailWindCSS** and UX principle of “mapping.”
- Developed support for PDF file types, including research on best code libraries.
- Assisted clients in Agile sprints to prompt-engineer personalised assistants on LLM application.

Department of National Defence

September 2023 - December 2023

**Software Developer Intern**

- Researched antivirus software providers, software versions and processes to develop analytics in **Python** for the Government's Threat Surface dashboard.
- Wrote to and queried **MongoDB** database using CLI and Atlas.

uOttawa Engineering Outreach

May 2023 - August 2023

**Bilingual Instructor**

- Led STEM camps and developed activities. Topics included **JavaScript** and **Python**.

## Skills

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- Programming (**Python**, **Java**, **JavaScript**, **C++**, **C**, **Go** and **R**).
- Machine Learning (**Keras**, **PyTorch**, **TensorFlow**, **Pandas**, **HuggingFace** and **Jupyter Notebooks**).
- Databasing (**SQL**, **PostgreSQL**, and **MongoDB**).
- Software Development (**Bash Scripting**, **Slurm**, **VSCode**, **Azure DevOps**, **Vim**, **Git** and **GitHub**).
- Comfortable in French (B2 proficiency on CEFR scale).
- Excellent communication and teamwork skills.

## Projects

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### Machine Translation for Different Language Pairs

- Trained Sequence-to-Sequence Transformers in 3 language pairs using **Keras**.
- Evaluated the performance using BLEU scoring.

### Hand Gesture Detection

- Trained Neural Network with **Keras** on more than 145,000 images of hands from HaGRID (a varied open source dataset) to classify 29 gestures.
- Preprocesses data using **Google AI's** Mediapipe Hand Landmarking.
- Performs live hand detection and prediction via webcam using **OpenCV**.
- Source code written in **Python**, with **Pandas**, **NumPy** and **SKLearn** libraries.
- Achieved 85 to 90% accuracy on the validation dataset.

### Google vs DeepL Experiment

- Self-directed experiment comparing the difference in translations done by Google Translate API with DeepL API for a large English to French dataset. Early results show that the services are highly similar.
- Uses two metrics: modified version of Levenshtein Distance and METEOR, which I have implemented in **C++** to improve speed on large texts. Text is pre-tokenized (with the **HuggingFace** transformers library) for better accuracy.
- Written in **Python** using **NumPy**, **Pandas** and **Matplotlib**.
- Contains unit tests using **Python's** native test library.

### Personal Website

- Personal website to showcase myself as a student, tutor and programmer.
- Written with **React** in **JavaScript**. Hosted with **GitHub** Pages.
- Improved usability by studying feedback from a variety of users.
- Available in English and French.

## Awards

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Canadian Hearing Services

August 2021 and August 2023

### **National Scholarship**

- Valued at \$3000 per year. Declined in 2023 in order to accept an internship.