

# Daniel Guo

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## EDUCATION

### University of Waterloo

Bachelor of Computer Science, Computer Science - AI Specialization

Waterloo, ON

Sep. 2024 – June 2029

## TECHNICAL SKILLS

**Languages:** Python, C/C#, Java, SQL, Bash, Racket, HTML/CSS

**Frameworks:** Django, PyTorch, TensorFlow, Scikit-Learn, FastAPI, YOLO, LangChain

**Developer Tools:** Git, GitHub Actions, Docker, AWS (S3, Lambda), MLFlow

**Libraries:** Hugging Face, OpenCV, pandas, NumPy, Pydantic, Matplotlib, Seaborn, BeautifulSoup

## EXPERIENCE

### Machine Learning Intern

May. 2025 – Present

Voicera

Remote

- Designed and implemented a speaker diarization system to identify and map target speaker in input files
- Built a speaker ID system to validate target speaker in segmented audio chunks, increasing prediction accuracy
- Utilized **CodeBuild** to deploy the changes and features to **Google Cloud Platform** for testing

### AI Research Assistant

Dec. 2025 – Present

University of Waterloo

Waterloo, ON

- Designed and implemented customizable prompt template feature for **RankLLM**, replacing hardcoded prompts with dynamic configurations to improve extensibility and maintainability while ensuring backward compatibility
- Designed and implemented a multi-tier caching system for corpus retrieval, combining local file caching, HuggingFace Hub fallback, and on-demand Pyserini retrieval to minimize redundant computations
- Developed tests with **unittest** and integrated them into **GitHub Actions** to automate testing on pull requests
- Updated and fixed external RankLLM integrations in **LangChain**, **rerankers**, and **LlamaIndex**
- Implemented multi-GPU support for listwise rerankers using **vLLM**, enabling scalable, high-throughput reranking

### Backend Developer

June 2024 – Dec. 2024

QuickPOS Technologies Inc.

Richmond Hill, ON

- Maintained and debugged the merchant CRM system APIs for Kungfu Tea built with Django to track data of **140,000+** customers and **\$20,000+** in daily sales
- Assisted in developing new API CRUD operations for new features in the app such as lucky draw
- Increased test coverage by writing unit/integration tests (pytest) for critical CRM APIs, catching 3+ critical bugs

### IT Assistant

Aug. 2023 – Sep. 2023

QuickPOS Technologies Inc.

Richmond Hill, ON

- Assisted with the installation and configuration of **20+** hardware devices and software systems
- Provided technical support and debugging to over **40** customers to resolve hardware and technical system issues

## PROJECTS

### MockInterview | Pytorch, Hugging Face, Pandas, Django, Next.js, BeautifulSoup, Python

Feb. 2025 – Present

- Developed a full-stack end-to-end web application using with **Django** and **Next.js**
- Fine-tuned a Hugging Face model with **Pytorch** using a custom created dataset of 3000+ examples
- Created custom Postgres database models for storing text data and utilized S3 for storing saved video data

### SudokuVision | Python, OpenCV, TensorFlow, Django

Dec. 2024 – Feb. 2025

- Trained a CNN model with **TensorFlow** on an image dataset of digital numbers, achieving 92.5% accuracy
- Developed **OpenCV** logic that preprocesses, locates Sudoku board with contours, and segments it to detect digits
- Developed an efficient backtracking algorithm to automatically solve the puzzle with the detected digits

### Laptop Price Predictor | Python, Scikit-Learn, Jupyter Notebook, pandas, matplotlib, Seaborn

- Trained a **Random Forest Regressor** model on a Kaggle dataset containing mixed data to predict laptop prices
- Effectively preprocessed data through one-hot encoding, feature extraction, and numerical standardization
- Evaluated model performance, achieving an  $R^2$  score of **0.83**, and visualized predictions to assess accuracy