

DOUGLAS QUAN

Toronto, Ontario

☎ 437-351-1092 ✉ [Email](#) [LinkedIn](#) [Github](#) [Personal Website](#)

EDUCATION

University of Toronto

Sep 2021 – May 2025

Honours Bachelor of Science, Computer Science Specialist & Mathematics Minor

CGPA: 3.51/4.0

- Dean's List Scholar
- **Relevant Coursework:** Data Structures, Software development, Web Development, Database Management, Systems Programming, Artificial Intelligence, Machine Learning, Neural Network and Deep Learning, Information Security, Computer Vision, Computer Architecture, Computer Organization, Operating Systems, Computer Networks

EXPERIENCE

Full-Stack Web Developer Intern

Apr. 2024 – Present

Global Health Core

Toronto, ON

- Collaboratively developed an interactive web application focused on enhancing global health accessibility. Utilized the **MERN stack** and integrated with **GraphQL** databases to optimize performance and scalability.
- Implemented a comprehensive patient dashboard that centralizes health data including medical reports, imaging, and medication details. Utilized **Redux** to create a user-friendly interface for effective health information management.
- Translated basic user cases into working prototypes and complex models with data structures to meet the requirements and solve customer-facing bugs.

Development Engineer Intern (NLP, Machine Learning and LLM)

Jan. 2024 – current

Lillup

Remote

- Engaged in the **end-to-end data pipeline**, from **sourcing and cleaning datasets** to applying analytical techniques for model training and validation.
- Contributed to the development and integration of machine learning pipelines using **TensorFlow** and **Scikit-learn**, ensuring seamless model deployment and scalability in production environments.
- Collaborated closely with cross-functional teams to design and execute comprehensive experimental frameworks, leading to a **20% improvement** in LLM models' accuracy and efficiency through iterative testing and tuning.

Research Assistant

Sep. 2023 – current

University of Toronto, Department of Economics, Supervisor: Loren Brandt

Toronto, Ontario

- Developed a **web scraping** mechanism in **Python** to scrape industrial policies and patenting data from PKUlaw.com
- Leveraged **Cohere Classify**, a **large language model (LLM)**, to classify over **300k** policy documents effectively
- Analyzed datasets with **Excel Pivot Tables** to identify relationships between different industry classification systems
- Wrote Python scripts using **Pandas** and **Seaborn** to clean, preprocess, visualize, and analyze datasets
- Used pretrained models to generate **text embeddings**, enabling the comparison of textual similarities and facilitating the mapping between different categorization systems.
- Developed a Python script for **text parsing** to automate the conversion of PDF content into structured Excel data

Research Assistant

Sep. 2022 – Sep.2023

University of Toronto, Department of Linguistics, Supervisor: Naomi Nagy

Toronto, Ontario

- Contributed in a Jyutping-to-Chinese transliteration project, focusing on data analysis, sourcing, and cleaning for an **RNN model**, achieved a character error rate (CER) of **0.21**
- Developed **Python** scripts to automate repetitive tasks and data entry process with **PyCantonese** and **ELAN API** on **63** Cantonese interview transcriptions
- Utilized **FileZilla** for file management of interview data, and **ELAN** for **NLP** analysis
- Ideated and Developed a **corpus-based imputation method** to solve inconsistency in transcriptions
- Recruited Torontonians who speak Cantonese as a heritage language for an interview

PROJECTS

MeetHomie | *Django, React.js, Javascript, REST API, JWT Authentication, Tailwind CSS*

Jan. 2024

- Deployed a **full-stack** scheduling platform designed to streamline the organization of regular one-on-one meetings
- Utilized **React.js** for the frontend development, creating a **responsive and interactive user interface**
- Developed a comprehensive **database schema** and implemented a **RESTful API** with thorough documentation and **Postman testing**, utilizing the **Django** framework for robust back-end functionality

WeBite | *Flask, React.js, REST API, SQLite, Tailwind CSS*

Jan. 2024

- Contributed as a **full-stack developer** in a food ordering app project aimed at connecting home cooks with customers
- Employed a **microservices architecture** for the backend with **Flask** and designed a **SQLite**-based database schema
- Adopted **Agile** development practices within the team, participating in sprint planning, daily stand-ups in a group of 7
- Utilized **Jira** as project management tool, efficiently tracking and managing backend tasks, bugs, and features

J2C Translator | *Python, Deep learning, PyTorch, NLP*

Nov. 2023

- Developed the first seq-to-seq Jyutping-to-Chinese-Character translator with **Transformer Model Architecture**
- Performed **data cleaning** on over **18000** training examples from three Cantonese conversational corpora datasets
- Improved validation accuracy by **17%** compared with the baseline model using **RayTune** for hyperparameter tuning
- Designed a weighting mask to solve the homophone ambiguity problem in J2C translation, achieving **94%** test accuracy

TECHNICAL SKILLS

Programming Languages: Python, Java, C, HTML/CSS, JavaScript/TypeScript, R, SQL

Developer Tools: Unix/Linux, GitHub, Vim, RStudio, Figma, Google Colab, Jupyter, Excel, kali Linux, VSCode, PyCharm, IntelliJ, Postman, Docker, Jira, Azure, Graphiql, Apollo Client

Frameworks and Libraries: React.js, Django, Node.js, Next.js, Express, Flask, FastAPI, Bootstrap, Tailwind CSS, SQLite, PostgreSQL, MongoDB, GraphQL, Pandas, Scikit-learn, TensorFlow, PyTorch, Numpy, Matplotlib, OpenCV

Languages

Languages: Cantonese, English, Mandarin