DOUGLAS QUAN

Toronto, Ontario

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EDUCATION

University of Toronto **Sep 2021 – May 2025**
HBSc, Computer Science Specialist, Mathematics Minor *CGPA: 3.42/4.0*
- Dean's List Scholar
- **Relevant Coursework:** Neural Network and Deep Learning, Database Management, Data Structures, Web Development, Systems Programming, Information Security, Computer Vision, Operating Systems, Computer Networks

EXPERIENCE

Incoming Functional Analyst, Model Governance Intern **Sep. 2024 – Dec. 2024**
Canadian Tire *Toronto, ON*

Research Assistant **Sep. 2023 – current**
University of Toronto, Department of Economics, Supervisor: Loren Brandt *Toronto, Ontario*
- Utilized **Cohere Classify** to classify over 300,000 policy documents, enhancing data analysis precision.
- Leveraged **Cohere Embed** to generate **text embeddings** for policy documents, constructing mappings between different categorization systems.
- Analyzed datasets with **Excel Pivot Tables** to identify relationshps between different industry classification systems
- Developed Python scripts using **Pandas** and **Seaborn** to clean, preprocess, visualize, and analyze datasets
- Designed a **web scraping** mechanism in **Python** to collect industrial policies and patenting data from PKUlaw.com.

Web Developer Intern **Apr. 2024 – Aug. 2024**
Global Health Core *Toronto, ON*
- Develop a customer support **AI chatbot** using **Vercel AI SDK** powered by OpenAI's ChatGPT 3.5, and **Pinecone** for scalable database management

Machine Learning Engineer Intern **Jan. 2024 – May. 2024**
Lillup *Remote*
- Leveraged Hugging Face's **Multimodal LLM (Idefics2-8b)** and **AI web agent (LaVague)** powered by OpenAI GPT-4o and Llama Index to automate job applications filling, reducing manual application time by **80%**

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 data processing for **63** interview transcriptions by using specialized APIs.
- Developed a novel corpus-based imputation method to address transcription inconsistencies, improving data reliability.
- Recruited Torontonian participants 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
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
Developer Tools: Tableau, IBM Cognos, MS Access, MS Excel, Unix/Linux, GitHub, Vim, RStudio, Figma, Google Colab, kali Linux, Postman, Docker, Jira, Azure, Graphiql, Apollo Client

Languages

Languages: Cantonese, English, Mandarin