

Zeyu (Dennis) Wang

PROFESSIONAL SUMMARY

Master of Information Technology (AI) student at the University of Melbourne (graduating in 2 months) with a strong foundation in machine learning, software development and AI infrastructure. Solid experience in building and evaluating machine learning models, full stack software development with competence spanning all phases of the development life cycle. Passionate about leveraging AI in practical solutions and boost workflow.

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RESEARCH / INTERN EXPERIENCE

Conversational AI Research Assistant

Melbourne Data Analytics Platform (MDAP)

Jul 2024 - Nov 2024

- Worked in a **cross-functional team**, understood the existing codebase through self-developed a similar legal document Q&A web chatbot with **RAG** using **Streamlit** and **Langchain**
- LLM API Usage:** Connected OpenAI APIs to the application; stored documents in **Chroma vector database** with similarity search for document extraction; implemented **caching** to reduce LLM costs; extended the chatbot with user able to switch to **LLaMA model**, connection enabled with llama.cpp
- Benchmarking Pipeline:** Built a benchmark pipeline through letting LLM response with summaries of documents; summaries provided from LLM with **prompt engineering**, adjusted the prompt carefully to allow model provided consistent length and structure of responses; deployed pipeline on unimelb server

Sound Event Tagging

MicroCode Electronics Co, Ltd, Nanjing, Jiangsu

Jan 2025 - Present

- Provided with real-time recorded raw audio files, conducted **audio analysis** with Librosa, built and trained convolutional neural network for audio tagging using **Keras** and audio specific features (MFCCs)
- Complied with clients' requirements, converted keras models to RKNN models for **deployment** on NPUs, validating **inference consistency** on embedded Linux system (Ubuntu) with scripted test cases; **automated** the conversion and testing workflow and documented full steps for client's further testing
- Currently experimenting with more complex models in processing more datasets

RELEVANT PROJECTS

Text Generation Detection

Statistical Machine Learning Course

First Semester of 2025

- Given generated texts as lists of tokenised indices, applied BoW and bi/tri-grams BoW for processing; with **data cleaning**, **feature engineering** and data augmentation steps such as masked indices, low frequency words removal, combined with calculated numeric features etc
- Adapted out-of-fold cross validation; SMOTE and **test time augmentation** as techniques for dealing with **class imbalance**; **multi-task learning** for 2 datasets from separate domains
- Ensemble SGD models (Logistic regression, SVM, Naive Bayes) and implemented **auto encoder** in **PyTorch** for dimension reduction; achieved **1th position** on the public leaderboard

Full Stack Web Development

IT Project Course

Second Semester of 2023

- Built a Student Request Portal (allow students send queries easier) in a cross-functional team following the **Agile** methodologies; portal website integrated seamlessly with the university learning system
- Backend Development:** Implemented **REST APIs** with **Spring Boot (Java)**, automated deployment and code changes via **CI/CD pipelines (Git)**
- Database Management:** Managed **relational databases** through MySQL workbench and **MyBatisPlus** framework, which simplifying database access and take control of the SQL queries
- Testing:** Wrote **unit tests** under Spring boot framework; conducted **integration tests** through Postman for APIs and features implemented
- Frontend development:** Developed staff interface with **Vue3.js** and **AntDesignVue** component library

Natural Language Inference

Natural language Processing Course

First Semester of 2024

- Applied data preprocessing using **NLP techniques** (NLTK, sklearn) on 1 million evidences and thousands of claims
- Tried several **vectorizing** techniques such as Tf-IDF, BM25, BoW etc; eventually constructed a bi-encoder model with padding, embedding and **LSTM** layers using **Keras and TensorFlow**; combined with top-k embedding similarities; achieved **7th position** in Codalab competition out of 120 teams

Frontend Software Development

Software Project Course

Mar 2025 - Present

- Followed an **Agile** framework, **working with clients** seamlessly to build a **mobile and desktop integrated software** that help patients to monitor and record their falling risks
- Implemented the patient dashboard interface using **Vue3.js**; received positive feedback on completion of the requirements as well as additional features that could further improve the user experience
- Currently implementing the clinician and admin users dashboards, as well as making **API connections** with the backend team

Computer Vision

Computer Vision Course

Second Semester of 2024

- Performed **image segmentation** and background removal on ShapeStack dataset, applied **transfer learning** with pre-trained models to make **classification**
- Enhanced understanding in leveraging **pre-trained** VGG, Inception, ResNet from Keras; utilised Pytorch for building InceptionV4 model, and **YOLO-v9** for shape segmentation and classifying the stacking height

EDUCATION

Master of Information Technology | Artificial Intelligence

University of Melbourne, Melbourne

Mar 2024 - Present

- **Relevant Coursework:** Natural Language Processing, Computer Vision, Statistical Machine Learning, Software Processes and Management, Software Project
- **Weighted Average Mark:** 79 | Second Class Honours A

Bachelor of Science | Computing and Software System

University of Melbourne, Melbourne

Mar 2021 - Dec 2023

- **Relevant Coursework:** Machine Learning, Computer System, Design of Algorithms, IT Project, Software Modelling and Design, Object-Oriented Software Development
- **Weighted Average Mark:** 83 | First Class Honours

SKILLS

- **Languages** (in order of proficiency): Python | Java | SQL | R | JavaScript | C
- **Software Project Tools:** Git, Confluence, Trello, Agile
- **Software Design Frameworks:** Spring Boot, Flask, React, Vue3, Node.js
- **Machine Learning / AI Libraries:** TensorFlow, PyTorch, Keras, HuggingFace, Scikit-learn
- Competence in **cloud computing** (AWS, UniMelb Research Computing Portal), remote desktop working with **Linux** and containerizer with **Docker**
- Complete fluency in both **English** and **Mandarin**

VOLUNTEER

VCE Maths Tutor

Step Education + QS School

Jan 2021 - Nov 2024

- More than 3 years of experience teaching students across diverse age group, high school students been taught all achieved a VCE of 90+
- Coupled with exceptional ability to communicate with different age group of people, as well as strong skill to **deliver presentations** in multiple occasions