Willy Chung

Machine Learning Engineer

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EDUCATION

CentraleSupélec, Paris-Saclay University — **Gif-sur-Yvette, France**
Master of Engineering - Applied Mathematics — 09.2019 - 12.2023

- GPA 3.97/4.33 - Relevant courses: Optimization, Model Representation and Analysis, Signal Processing, Algorithmic & Complexity, Big Data Management, Parallel and Distributed Programming, Automation

Hong Kong University of Science and Technology — **Clear Water Bay, Hong Kong**
Master of Philosophy in Electronic and Computer Engineering - AI/NLP (Dual Degree) — 09.2021 - 10.2023

- Thesis: "Instruction-Tuned Large Language Models for Zero-Shot Task-Oriented Dialogue Systems"
- Relevant courses: Advanced Deep Learning Architecture, Statistical Learning for Text and Graph Data, Advanced Topics in AI and Healthcare

SKILLS

Languages: French (native), English (fluent, IELTS : 8.5/9), Cantonese (native), Chinese (intermediate)
Programming: Python (pandas, scikit-learn, pytorch, huggingface), SQL, MATLAB, bash
Software: DialogFlow, Docker, Git, MongoDB, Neo4j, SolidWorks
Certifications: Deep Learning Specialization, Natural Language Processing Specialization (deeplearning.ai) 01.2024

WORK EXPERIENCE

Hong Kong University of Science and Technology — **Clear Water Bay, Hong Kong**
Teaching Assistant (ELEC1200 - 80 Bachelor | ELEC6910Y - 18 MPhil/PhD) — 01.2022 - 06.2023

- Designed lab and assessment on word embeddings and Transformer models for 18 postgraduate students
- Delivered lectures on generative language models (BERT, GPT-2) for implementation, training and integration

Coffreo — **Paris, France**
Data Science Intern — 03.2020 - 07.2020

- Processed and analyzed 4.000.000+ real-world data features for time series forecasting
- Implemented and trained ARIMA, SVM and RF models to predict temporary worker demand

PROJECTS

Center for Artificial Intelligence Research (CAiRE, HKUST) — **Clear Water Bay, Hong Kong**

➢ **InstructTODS: LLMs for End-to-End Task-Oriented Dialogue Systems [code][paper]** 12.2022 - 08.2023

- Developed a plug-and-play framework in Python to use LLMs as task-oriented dialogue systems with databases
- Conducted a comprehensive study of LLM's capability to replace end-to-end task-oriented chatbots in zero shot
- Evaluated LLM's off-the-shelf capabilities for task-oriented subtasks: dialogue state tracking, intent classification

➢ **Grace, Humanoid Robot for Hospital Care** 10.2022 - 04.2023

- Designed the dialogue module of the robot in Cantonese using Dialogflow ES to interact with patients
- Developed and integrated the webhook backend using Python (Flask) to customize the fulfillment interaction
- Delivered presentations as technical advisor to healthcare professionals (nurses and doctors)

➢ **A Multitask, Multilingual, Multimodal Evaluation of ChatGPT [paper]** 12.2022 - 04.2023

- Designed and ran evaluations for ChatGPT as a task-oriented dialogue system
- Wrote documentation for LLM dialogue system evaluation protocols in Python

➢ **Virtual Well-being Companion with Emotion Detection for Elderly People [code][paper]** 08.2021 - 02.2023

- Designed an anthropomorphic virtual chatbot using Dialogflow for elderly individuals in community care
- Investigated cross-age and cross-lingual transferability for elderly speech recognition across 4 languages
- Presented our accepted publication for oral presentation at INTERSPEECH 2023 in Ireland

Mechanics, Soils, Structures and Materials Laboratory (CentraleSupélec) — **Gif-sur-Yvette, France**

➢ **AI-aided asteroseismology: reproducing gravitational waves** 09.2020 - 04.2021

- Trained and evaluated RNN and LSTM models for automatic generation of gravitational waves
- Implemented a GAN-based learning method for joint distribution matching for unidimensional data