Qi (Archie) Zhang

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Education

09.2023 – 09.2025 **University Van Amsterdam**, Amsterdam
Master, Computational Science
Courses: *Machine Learning, Evolutionary Computing, Numerical Algorithms, Complex Systems, Agent-Based Modelling, Stochastic Simulation, Computational Finance, Quantitative Risk Management*

09.2019 – 06.2023 **North China Electric Power University**, Beijing
Bachelor, Energy and Power Engineering (Energy Storage)
Courses: *Solar Energy Storage, Battery Energy Storage, Energy Systems, Renewable Energy Techniques*.
Thesis: *Thermal Management in Lithium-Ion Batteries Using Immersed Phase Change Materials*

Internship

07.2024 – 08.2024 **Research Intern**, Chinese Academy of Sciences, Beijing

- Built a Flask-based alert management system with user authentication and role-based access, using **SQL** for data storage and token-based login verification.
- Built and deployed a multi-channel data pipeline integrating Email, SMS, and WeChat APIs.
- Designed deduplication and compression mechanisms to ensure reliability under high alert conditions.
- Customized and deployed **large language models (LLMs)** to analyze daily alert logs and support decision-making.

Research Experience

11.2024 – 08.2025 **Thesis: Systems Dynamics Models of Blood Pressure Regulation**, University Van Amsterdam

- Built a **digital-twin** cardiovascular model integrating baroreflex, cerebral autoregulation, and oxygen transport mechanisms to simulate orthostatic hypotension.
- Processed and analyzed multi-modal clinical data (Finapres, fNIRS) from Amsterdam UMC using Python and MATLAB.
- Implemented **evolutionary algorithms** to tune 41 parameters on high-performance computer, achieving **>85%** accuracy in replicating blood pressure and oxygenation.

08.2024 – 01.2025 **LLM-based Text Classification and AI Text Detection**, Kaggle Competition Project

- Built a **DeBERTaV3**-based shared-weight classifier to model LLM response quality from Prompt + Response A/B pairs, evaluated by Log Loss.
- Designed an efficient **KerasNLP** + **TensorFlow pipeline** with dynamic tokenization and **LoRA** fine-tuning; monitored training via **Weights & Biases**.
- Improved stability and generalization through **cross-validation** and **ensemble methods**, ranking in the top **10%** on Kaggle.

01.2024 – 04.2024 **Hotel Recommendation System for Expedia**, Vrije University Amsterdam

- Developed a complete data mining project on hotel recommendations, involving data processing, analyzing, feature engineering, predicting based on historical customer booking dataset.
- Applied and compared **machine learning** models (Random Forest, LSTM, KNN, LightGBM, XGBoost) in **PyTorch** and **TensorFlow**, achieving an NDCG@5 score of 0.41.
- Ranked **top 10** out of 218 teams in the 2024 Kaggle VU Data Mining Techniques Cup competition.

Skills

Languages	English(C1), Chinese(Native).
Programming	Python (Pandas, NumPy, Scikit-learn, PyTorch), R, Matlab, SQL, Julia, Huggingface, Git
Data Tools	Tableau, Power BI, Excel
Machine Learning	Statistical Learning, Neural Networks, Evolutionary Optimization, Time-Series Modelling
Others	SolidWorks, Linux, COMSOL, AutoCAD, Hign-performance Computer

Scholarships and Awards

2022 **National First Prize**, China Engineering Robotics Competition
University Scholarship 2020-2022, NCEPU.

Hobbies

Football (Fan and Player), Rock Music, Photographer, Cycling, Hiking...