

Muying Zhao

muying.zhao31@gmail.com | 07867177884 | <https://github.com/MuyingZhao>

Profile

Aspiring Software Developer with a strong foundation in **full-stack development, data engineering, and machine learning**. Experienced in building scalable systems, **designing ETL pipelines, and developing interactive web applications**. Skilled in **Python, Java, JavaScript, SQL, and cloud technologies (AWS, Huawei Cloud)**. Passionate about writing clean, efficient code and solving complex problems through software developing and engineering.

Education

The University of Manchester, MSc in Health Data Science Sept 2023 – Nov 2024

- Merit (69.3/100)
- **Dissertation:** Developed a novel triNMF method in **Python** for multi-modal genomic data, optimizing performance with **VAEs and clustering algorithms**. (74/100)
- **Related Modules:** Modern Information Engineering, Machine Learning & Advanced Data Methods, Fundamental Mathematics & Statistic, Mathematical Computing for Medical Image

Hunan University, MEng in Computer Technology Sept 2020 – June 2023

- Recipient of First Class Scholarship
- **Thesis:** Serendipity-Oriented Bundle Recommendation using GCNs, Introducing users to unexpected but delightful recommendations, expanding their choices beyond the obvious while still aligning with their interests.
- **Related Modules:** Engineering Ethics, Analysis and Design of Parallel Algorithms, Social Network Analysis, Natural Language Processing Technology, Techniques and Applications of Knowledge Graph

Guizhou University, Bachelor of Digital Media Technology Sept 2016 – Jul 2020

- GPA: 84.32/100 | First-class scholarship recipient
- **Related Modules:** Java Programming, Professional Website Development, Advanced Language Programming, Object-oriented Programming, Computer Network, Database System Principles, MATLAB and Its Application

Working Experience

Software Engineering Intern (Big Data Team), Tengyun Yuezhi Technology – Jan 2023 - Mar 2023
Chengdu, China

- Developed **ETL pipelines** using **Apache Kafka, Hive, and REST APIs** to ingest and process app logs, ensuring data consistency and scalability.
- Developed **Python backend (Flask) + React frontend** interactive dashboards, enabling real-time monitoring of API health metrics, and validated dashboard accuracy through **unit tests (pytest) and manual QA**.
- Managed codebase via **Git/GitHub** for Version Control, following branching strategies and PR reviews.
- Collaborated in **Agile (Scrum)** with DEV teams, including sprint planning, daily standups, and Jira ticketing.

Graduate Research Assistant, Hunan University – Changsha, China Sep 2020 – Jun 2023

- Designed a **serendipity-driven recommendation system** (PSBR) using **GCNs** for game recommendation using **Python Libraries PyTorch, TensorFlow, scikit-learn**, improving user diversity metrics by **30%**.
- Collected and linked various open-source Steam and Amazon customer datasets for **machine learning** training, applying **PCA** for dimensionality reduction to optimise storage, visualise data and decrease training time.
- Applied statistical methods and clustering techniques (**K-Means, GMM, Hierarchical Clustering**) to analyse datasets, presenting key insights in graphs for non-technical audiences.
- Demonstrated the effectiveness of combining serendipity and diversity in recommendations, achieving superior results in multiple evaluation metrics (e.g., **NDCG, recall, and entropy**)

Projects

Startup Website Development

Mar 2025 - Present

- Design, development, and deployment of a website for a friend's start-up (Link: <http://secrova.com/>).
- Built front end with **HTML/CSS**, and **JavaScript** while integrating Python-based backend systems.
- Managed **cloud deployment** and gained practical knowledge in web security (still improving) and **IAM**.
- Tools: Huawei Cloud, Next.JS, Python

Personal Portfolio Website with AI Integration

Ongoing

- Developing a **dynamic personal website** to showcase my professional profile, education, and experience with interactive features (will be shown in <https://www.muyingzhao.co.uk/> after 1st May, 2025).
- Building front end with **HTML5, CSS3, and JavaScript (ES6+)** for **responsive design**, integrating **AWS cloud services (Lambda, API Gateway)** to deploy an NLP API that extracts and displays keywords from my CV, and storing visitor analytics and user interactions in **SQL Server** for future scalability.
- Features including interactive CV download, NLP analysis of my professional background, and version control via **Git/GitHub with CI/CD pipeline** for automated deployments.
- Tools: AWS, JavaScript, CSS, HTML, GitHub/Git

Integrative Analysis of Single-Cell Multi-Omics Data

June 2024 - Sep 2024

- Developed a novel **Triple Integrative Non-negative Matrix Factorization (triNMF)** method to analyse gene expression, protein quantification, and chromatin accessibility.
- Implemented **VAEs, Normalization, and Scaling** for improved integration across datasets, and evaluated performance with **ARI, MI, and Silhouette Score**, achieving a **15% improvement** in clustering accuracy.
- Tools: Python, matplotlib, scikit-learn, Pandas, Numpy

Prescription Analysis Dashboard

Sep 2023 – Dec 2023

- Developed a **Flask backend and Chart.JS Frontend** dashboard for analyzing prescription patterns and drug costs, using GitHub for version control.
- Managed team progress and sprint goals as **Scrum Master**. Followed **Agile-Scrum** methodology, completing three sprints using a **Kanban board**.
- Visualised prescription patterns by GP practice and Primary Care Trust (PCT) using interactive charts.
- **Downloadable reports** generated that summarize prescription data and insights.
- Tools: Python, Chart.JS, GitHub, Kanban

Dashboards for COPD Patients and CCG Managers

Sep 2023 – Dec 2023

- Developed an **interactive dashboard** with visualisations (maps, charts) to analyze **COPD** trends, simplifying complex health data for stakeholder decisions and patient self-management.
- **Merged multiple datasets** using attributes like Practice Name and Practice Code to enrich the displayed data.
- Tools: R, Tableau, Excel, SQL

Volunteer

Sue Ryder

Jul 2024 - Present

- Assisted with product pricing and sorting, enhancing customer satisfaction in a **retail environment**.

Code Your Future

Mar 2025 - Present

- Assisted with **code review and in-person workshops** for trainees to help them learn coding skills.

Technologies

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

Framework & Tools: Next.JS, React, Flask, Docker, Kubernetes, Apache Kafka

Databases & Cloud: AWS (**Certified Solutions Architect - Associate**), Huawei Cloud, Hive, MySQL, SQL server

Machine Learning & Data Engineering: PyTorch, TensorFlow, scikit-learn, GCNs, Numpy, Pandas, Tableau, PowerBI (**Microsoft Certified Associate Data Analyst**)