Binke Xu

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https://www.linkedin.com/in/binke-xu-/ | https://binkexu.github.io/binke-xu-portfolio/ | PR Visa

SUMMARY

- Master of Science in Artificial Intelligence (Distinction) and Bachelor of Engineering in Software Engineering (Hons IIA) from Victoria University of Wellington.
- Experienced in building end-to-end solutions, from backend services and data pipelines to machine learning and full-stack deployment.
- Proficient in Python, SQL, Java, PyTorch, TensorFlow, React, and Azure with a strong foundation in data engineering, AI model deployment, and MLOps.
- Passionate about developing data-driven and intelligent applications that solve real-world problems efficiently and at scale.

SKILLS

Programming: Python, SQL, Java, JavaScript, TypeScript, Node.js
Frameworks & Libraries: PyTorch, TensorFlow, FastAPI, React, NumPy, Pandas
Data & Cloud: Azure, Docker, Kubernetes, PostgreSQL, REST APIs, ETL Pipelines
Development Practices: Git, GitLab CI/CD, Agile (Scrum), Unit Testing
Monitoring & Deployment: Prometheus, Grafana, Streamlit, Docker Compose
Certifications: Microsoft Azure Fundamentals (AZ-900), Azure AI Fundamentals (AI-900)

WORK EXPERIENCE

Victoria University Of Wellington **Wellington, New Zealand**
Research Assistant, Wellington faculty of engineering September 2022 – March 2023

- Collaborate with Landcare research to design and implemented an end-to-end image segmentation pipeline using **Python, Pytorch** and **OpenCV** for environmental monitoring.
- Improved segmentation accuracy by 2% through optimisation of algorithms and data preprocessing.
- Produced visualisations and technical documentation for academic and non-technical audiences.
- Collaborated remotely with cross-functional teams, maintaining clear communication and project alignment.

PROJECTS EXPERIENCE (Engineering)

E-commerce Customer Churn Prediction/ Individual project 2025

- Built an **end-to-end MLOps pipeline** for 500K+ transaction records to predict customer churn and improve retention strategies.
- Designed **ETL workflows** for feature extraction, RFM segmentation, and behavioral analysis using Pandas and SQL.
- Trained and optimized ML models (LightGBM, XGBoost, Random Forest) achieving **AUC 0.91** and precision **0.88**.
- Deployed REST APIs with FastAPI and Streamlit dashboards for real-time prediction and business insights.
- Automated containerized deployments using **Docker, Kubernetes, and GitHub Actions**, and implemented system monitoring via P**rometheus & Grafana**.

Machine Learning For Tree Image Segmentation/ Research project 2022 – 2024

- Developed a genetic algorithm–based framework that automatically designed efficient U-Net architectures for tree segmentation, achieving **+14%** higher accuracy (Dice **85.56%** vs. **71.4%**) while reducing model size by **95%** (1.5M vs. 31M parameters).
- Built an **ensemble segmentation framework** combining LinkNet, U-Net, and DeepLabV3+ with multiple backbones, improving robustness and outperforming individual models (Dice **86.13%** vs. **85.23%**).
- Delivered solutions that were both more accurate and significantly less complex, demonstrating practical applications of **automated architecture search and ensemble learning** in real-world remote sensing tasks.

COVID-19 Analytics Dashboard/ Individual project 2021

- Developed an interactive web application to visualize global COVID-19 statistics with real-time data exploration and country-level analytics.
- Built interactive world map with color-coded case density, hover tooltips, zoom/pan navigation, and responsive design for desktop and mobile.
- Implemented population-adjusted metrics (per-million) and vaccination progress bars for fair comparisons across countries.
- Utilized **React**, **TypeScript**, **react-simple-maps**, **styled-components**, and **PapaParse** for robust CSV parsing, error handling, and smooth data-driven visualizations.
- Applied glassmorphism UI design with modern animations and memorized data aggregation for performance optimization.

Rocket Mission Control System / Group project 2020

- Collaborated with a 6-member team over two trimesters to engineer a rocket control system enabling seamless communication between the **flight simulation**, **avionics**, and **rocket** subsystems.
- Developed the core **Node.js** and **React** web application architecture for real-time data exchange and monitoring.
- Designed and implemented the simulation interface to efficiently receive, parse, store, and transmit telemetry data.
- Utilized **GitLab** for version control, ensuring smooth coordination and code integration across the team.

EDUCATION

Victoria University Of Wellington **Wellington, New Zealand**
Master of Science in Artificial Intelligence March 2023 – September 2024

- **Rank in Class:** A Grade with Distinction.

Victoria University Of Wellington **Wellington, New Zealand**
Bachelor of Engineering in Software Engineering March 2018 – August 2023

- **Rank in Class:** Second Class Hons (Div1).
- **Key Courses:** Engineering Project, Software Dev for Mobile, Database Engineering, User Interface Design, ML Tools and Techniques, Human-Computer Interaction, Computer Network Design

REFEREE

References are available on request.