Binke Xu

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SUMMARY

I am a recent Master of Science graduate in Artificial Intelligence with distinction from Victoria University of Wellington, building upon my Bachelor's degree in Software Engineering. I have experience in developing end-to-end solutions, from mobile applications to complex AI systems. My technical expertise spans multiple languages and frameworks, including **Python, PyTorch, Java, Node.js, and GitLab**, complemented by my **Microsoft Azure Fundamentals (AZ-900)** and **Azure AI Fundamentals (AI-900)** certification.

Currently seeking opportunities in Software Engineering or Artificial Intelligence-related roles to apply my skills and knowledge in a dynamic work environment, tackle challenging projects, and contribute to innovative solutions in the industry.

SKILLS

Languages & Tools: Python, SQL, Java, Node.js, Git, PostgreSQL, React, Azure
Data & ML: PyTorch, Pandas, NumPy, OpenCV, TensorFlow, Image Segmentation
Engineering Tools: GitLab, Agile (Scrum), CI/CD pipelines
Certifications: Microsoft AZ-900 (Azure Fundamentals), AI-900 (Azure AI Fundamentals)

WORK EXPERIENCE

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

- Collaborated with Landcare Research on a project focusing on tree image segmentation in the Wellington region.
  - Implemented advanced image segmentation method for precise image segmentation, **increasing accuracy by 2%**.
  - Utilized Python libraries including **OpenCV, PyTorch, and NumPy** to create a comprehensive pipeline for training, testing, and visualizing results for tree segmentation.
  - Engaged with project supervisors and external team members to assess project progress, address challenges, and strategize future steps, ensuring cohesive alignment of objectives.
  - Authored formal progress reports and delivered presentations to the team, elucidating project advancements, methodologies, and outcomes.

PROJECTS EXPERIENCE (Engineering)

Chatroom App / Individual project 2021

- Independently conceptualized and executed a personal project from the research to the development phase.
- Using React Native to create an Android application enabling real-time, multi-user communication within a local network environment.
- Design various user interface components including registration, login/logout, chatrooms, and individual user profiles.
- Utilized Google Firebase as a backend solution for storage and retrieval of user data.

Rocket Mission Control System / Group project 2020

- Collaborated with a 6-member team over two trimesters to develop a rocket control system, ensuring seamless communication and data transmission among the flight simulation system, avionics system, and rocket.

- Utilized Node.js and React to architect a robust web application serving as the core of our system.
- Design and implement the user interface for the simulation page for efficient data reception, parsing, storage, and transmission.
- Use GitLab for efficient version control management.

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.
- **Master by research:**
    - Conducted independent research utilizing Python to develop algorithms and tools for training and visualization.
    - Collaborated with supervisors and peers to refine project objectives and deliver presentations for effective communication of findings.
    - Developed strong skills in critical thinking, problem-solving, and project management.

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

PUBLICATION

Binke Xu, Bing Xue, Jan Schindler, and Mengjie Zhang. "Ensemble learning based on neural networks for tree image segmentation." In *2024 International Conference on Machine Intelligence for GeoAnalytics and Remote Sensing (MIGARS)*, pp. 1-3. IEEE, 2024.

- This paper uses an ensemble learning approach for sematic segmentation on tree remote sensing data. It improved the segmentation accuracy by 0.893% on quantity measure and provided fine-grained predictions in segmentation detail.
- Deliver presentation in *MIGARS* conference and discuss with the peer experts about this work.

Binke Xu, Ying Bi, Bing Xue, Jan Schindler, Brent Martin, and Mengjie Zhang. "Automatically designing u-nets using a genetic algorithm for tree image segmentation." In *2022 IEEE Symposium Series on Computational Intelligence (SSCI)*, pp. 626-633. IEEE, 2022.

- This paper uses a genetic algorithm for designing a CNN tailored to a real-world tree image segmentation task in New Zealand, with a presentation at SSCI 2022 in Singapore.
- The proposed method of this paper increased the segmentation accuracy by 14 % and reduced the parameter of the model by 90%.
- Poster session in the conference ‘Bridging the gap between remote sensing and tree modelling with data science’, meeting and discussion with the research teams from Canada and Singapore.
- The poster provides a clear and concise demonstration of paper, and used as part of project delivery.

REFEREE

References are available on request.