# Zheng Xue (ZX) Ching

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## Education

**University of Wisconsin-Madison** Madison, WI
*Bachelor of Science in Computer Science* *Dec. 2025*

## Experience

**Undergraduate Research Assistant** May 2025 - Nov. 2025
*INTEGRATE @ University of Wisconsin-Madison* *Madison, WI*

- Engineered Python-based ETL pipelines (Pandas, PostgreSQL) for VR user study logs, ensuring full traceability and reducing manual handling by 6.5 hours/week.
- Built a simulation tool to pseudo-randomize task assignments across 12 runs/user, reducing selection bias by 85%.
- Co-designed the scope and scale of the VR user study, defining experimental conditions, interaction, and participant tasks, maintaining data validity across all test subjects.
- Designed study protocols and backend flows for VR systems, reducing usability issues by 20% during pilot testing.

**Undergraduate Research Assistant** Oct. 2024 - Present
*MadAbility Lab @ University of Wisconsin-Madison* *Madison, WI*

- Designed a labeling schema and QA scripts for 10k+ frame samples, improving model prediction accuracy by 25%.
- Developed and deployed 8+ specialized backend query functions, reducing data retrieval latency by 40% to handle increased workloads via normalization.
- Integrated OpenAI's API into research tools, enabling dynamic, natural language data interaction and cutting down manual query-writing time by 50%, streamlining researcher workflows.
- Parallelized computational functions across a high-volume dataset, increasing processing throughput by 3.5x.
- Integrated Azure Services to enable real-time audio transcription and feedback for VR accessibility system.

**Software Engineer Intern** June 2024 – Aug. 2024
*Nixma Technologies* *Malaysia*

- Refactored core C# data-processing modules, improving p95 latency by 40% (under a load of ∼2k reqs/s) and boosting scalability for high-volume industrial automation tools.
- Designed and implemented automated testing pipelines using Jenkins + NUnit, reducing manual QA time by 30% and improving accuracy by 20% across hardware systems.
- Developed multithreaded backend functions, improving processing speed by 25% via reduced timeout incidents.
- Implemented role-based access controls and safety interlocks on WPF HMIs, reducing misconfiguration incidents by 20% during internal testing phases.

## Projects

**Fraud Detection System Capstone** Sep. 2025 - Dec. 2025
*Capital One* *Madison, WI*

- Built a serverless fraud-detection pipeline in Python on AWS (Lambda, API Gateway, DynamoDB, Secrets Manager), processing transactions with <200ms decision latency for high-risk flows; familiarized with Agile development methodologies through iterative sprints & code reviews.
- Engineered 10+ anomaly-detection features with the team and integrated model-scoring APIs to classify suspicious activity, improving detection recall by 22% in validation tests.
- Designed a full end-to-end CI/CD testing suite via GitHub Actions, integrating unit tests and auto-deploy scripts that reduced deployment errors by 30%.
- Optimized data throughput by 30% via local asynchronous processing and tuning DynamoDB access patterns.

## Technical Skills

**Languages**: Java, Python, C#, C/C++, SQL
**Frameworks/Tools**: Docker, Azure (VMs, Storage, Cognitive Services), GCP, AWS, Pandas, Relational Databases
**Relevant Coursework**: Big Data Systems, Operating Systems, Algorithms, Optimization, Computer Vision

## Publications

**Demonstration of VRSight: AI-Driven Real-Time Descriptions to Enhance VR Accessibility for Blind People** Demonstration to be showcased at **CHI 2025** (Conference on Human Factors in Computing Systems)
Daniel Killough, Justin Feng, Rithvik Dyava, **Zheng Xue "ZX" Ching**, Daniel Wang, Yapeng Tian, and Yuhang Zhao
doi.org/10.1145/3706599.3721194