# Weibing Wang

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## Education

**University of Wisconsin–Madison** September 2021 - Present

*Bachelor of Science in Computer Science and Mathematics (Dual Major)* *Madison, Wisconsin, USA*

GPA: 3.71/4.0 Credits: 156.

**Honors**: Dean's List (Fall 2021, Fall 2023, Spring 2024), ACM (Association for Computing Machinery) Member, Golden Key International Honour Society.

## Research Experience

**Researcher** September 2024 - Present

*Deep Learning-Driven Real-Time Behavior Recognition at JINGDONG Logistics X-Lab* *Beijing, China (Remote)*

* Architect a pruned Transformer-based model for real-time behavior recognition, achieving 98% accuracy while reducing model size by 30% and energy consumption by 25% across 400,000 IoT devices.
* Engineer an integrated IoT sensing system leveraging multi-modal data from smartphones, PDAs, and external sensors (accelerometers, gyroscopes, GPS), improving recognition accuracy by 20%.
* Optimize real-time decision-making pipeline through distributed computing and edge deployment.

**Research Assistant** January 2024 - September 2024

*AR Saliency, Advised by Prof. Yuhang Zhao* *Madison, Wisconsin, USA*

* Optimized Azure-based spatial anchor system with Flask and RabbitMQ microservices architecture, achieving 40% latency reduction and 8% recognition accuracy improvement.
* Integrated RTMDet and YOLOv8 for real-time 2D object detection in AR environments, implementing model quantization for edge deployment.
* Developed accessibility-focused features for HoloLens AR system, resulting in 25% improved hazard detection for visually impaired users.

**Research Assistant** December 2023 - August 2024

*AI Tutor Using LLMs, Advised by Dr. Meena Syamkumar* *Madison, Wisconsin, USA*

* Developed scalable OCR middleware and web scraper for educational content processing, integrating OpenAI embeddings with FAISS for efficient semantic search.
* Architected advanced NLP pipeline combining LangChain, NLTK, and custom embedding models, implementing RAG architecture with semantic chunking and dynamic context windows, reducing latency by 35%.
* Improved the tutoring system's scalability and response times, enhancing the user experience for both instructors and students.

**Independent Researcher** October 2023 - Present

*Siamese-SNN Framework for ECG Classification* *Madison, Wisconsin, USA*

* Architected a hybrid Siamese-SNN framework leveraging temporal dynamics and contrastive learning, achieving 97.8% classification accuracy with 35% reduced computational overhead.
* Optimized network topology through dual-path feature extraction and spike-based processing, resulting in 40% faster inference time and enhanced robustness against noise.
* Implemented adaptive thresholding and dynamic quantization techniques, enabling real-time ECG monitoring while maintaining medical-grade accuracy across diverse datasets.

## Professional Experience

**Algorithm Engineer Intern** May 2024 - August 2024

*JINGDONG Logistics X-Lab* *Beijing, China*

* Architected Spark pipelines processing 1M+ daily robotic arm trajectories, achieving 30% faster data ingestion through optimized partitioning and caching strategies.
* Implemented production ML pipeline with SHAP-based feature selection and Prometheus monitoring, enabling real-time warehouse scheduling and automated logistics routing optimization.

**Algorithm Engineer Intern** May 2023 - August 2023

*Beijing Yimi Youpin Technology Co., Ltd.* *Beijing, China*

* Architected ARIMA-based KPI prediction system with market trend analysis, achieving 92% accuracy for supply chain optimization.
* Implemented model distillation and QAT pipeline, reducing resource usage by 25% and improving inference speed by 40%.
* Designed high-throughput Kafka pipeline processing terabytes of distributed data, enabling real-time market analysis.

**Undergraduate Teaching Assistant/Peer Mentor** May 2024 - Present

*Department of Computer Sciences, University of Wisconsin–Madison* *Madison, Wisconsin, USA*

* Mentor over 60 students in CS571 (Building User Interfaces), contributing to a 15% increase in project usability scores.
* Facilitate coding and debugging sessions, helping students develop responsive, accessible, and functional interfaces using frameworks like React and React Native.

## Projects

**Medical AI System** | *LASSO, Transformers, Diffusion, AWS* January 2024 - May 2024

* Developed hybrid medical classifier combining LASSO-ISTA optimization and transformer embeddings, achieving 98% accuracy while maintaining model interpretability for clinical applications.
* Implemented diffusion-based synthetic data generation pipeline, reducing error rates by 30% through enhanced training data diversity and feature coverage.
* Deployed model on AWS with automated retraining pipeline, enabling robust real-time inference and continuous model updates.

**VR Medical Analytics Platform** | *Unity, OpenCV, AWS Lambda* Holos Inc., Madison | May 2023 - January 2024

* Collaborated with Holos Inc. to architect a real-time 3D medical visualization system, implementing custom computer vision algorithms for skeletal reconstruction with Unity optimization.
* Designed HIPAA-compliant serverless architecture on AWS, achieving 30% reduction in processing latency through optimized data pipelines and Lambda functions.

**Climate ML System** | *PyTorch, LSTM, ResNet* September 2022 - December 2022

* Developed LSTM-ResNet hybrid architecture achieving 85% prediction accuracy, with 40% faster preprocessing through optimized PyTorch pipelines.
* Implemented distributed ensemble learning framework enabling robust cross-dataset pattern recognition and automated model selection.

## Extracurricular Honors & Awards

**Accepted Paper:** 'Software Developers'Response to Unethical Coding Task Requests,'8th ICSTR, Singapore.

**Under Review:** 'Multi-Sourced AI Tutor for Non-Native English Speaker Students,'ACM SIGCSE.

**Work in Progress:** 'Leveraging Pruned Transformer Architectures for IoT-Driven Real-Time Behavior Recognition in Large-Scale Logistics Networks,'supervised by Prof. Desheng Zhang, Rutgers University.

## Skills

- **Programming Languages:** Python, Java/Kotlin, C/C++, JavaScript/TypeScript (React, MUI), Objective-C/Swift, C# (.NET, Mono), Bash, Assembly (LC-3, AT&T), PHP, Visual Basic, Lisp, ASP
- **Machine Learning:** HuggingFace, PyTorch/TensorFlow/NumPy/Pandas, NLTK, OpenCV, Transformers, Diffusion
- **Tools & Platforms:** Azure, AWS, Firebase, Docker, Flask, RabbitMQ, Apache Spark, Apache Kafka, Unity, MATLAB

## Certifications

**Deep Learning Specialization** October 2024

*DeepLearning.AI on Coursera*

Completed courses on Neural Networks, Deep Learning, Hyperparameter Tuning, Regularization, Optimization, Convolutional Neural Networks, and Sequence Models.

**Microsoft Certified: Azure AI Engineer Associate** In Progress

*Microsoft*

Focused on designing and implementing AI solutions using Azure AI services, Azure AI Search, and Azure OpenAI.