Ganyu Wang

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Education

Ph.D. in Computer Science **Sept. 2021 - May 2025**
University of Western Ontario

M.Sc in Computer Science (Thesis-based) **Sept. 2019 - July. 2021**
Ontario Tech University

B.Sc in Computer Science (with Honor Bachelor's Degree) **Sept. 2015 - Jul. 2019**
University of Electronic Science and Technology of China
*Yingcai Honors College (Top **5%** of undergraduates)* *Overall GPA: **3.84/4.00** (87.02/100)*

Professional Experiences

Machine Learning Researcher & Developer **Sept. 2021 - Present**
Western University

- Conducted research focusing on **distributed machine learning systems**, solving **fundamental challenges** such as **training efficiency, communication efficiency, and privacy-preserving computation.**
- Designed and implemented **scalable distributed machine learning system**, especially in the application of **LLM**, used black-box prompt tuning techniques for cloud-based LLMs, such as ChatGPT, optimizing system cost, improving adaptability and performance.
- **Scalable model deployment, evaluation, debugging and monitoring** using **AWS, Kubernetes**.
- **Led research teams**, **managed progress across multiple concurrent projects**, **mentored junior researchers**, and **collaborated with cross-functional teams**. Experienced in version control and team collaboration using **Git**.
- Conducted research on the ML frontier, including Online Learning, Zeroth-Order Optimization, and Differential Privacy. **Proficient in rapidly implementing SotA ML algorithms based on academic papers**, covering latest frameworks such as **PyTorch and TensorFlow**, **fintuning and prompt tuning LLM (Huggingface, OpenAI API)**, cloud-based APIs **(AWS, Azure)**, and doing complex evaluation using **Scikit-learn**.
- Published multiple peer-reviewed papers in **top-tier ML conferences (NeurIPS[1], ICLR[4], MLJ[5], KDD[6])** as **first author and project leader**, contributing novel insights into distributed ML system.

Full-Stack and Cloud Solutions Developer **Dec. 2023 - Present**
Asgard Alliance Inc.

- Designed and developed a **full-stack** application integrating RFID IoT devices for smart storage solutions, enabling **real-time inventory tracking, automated management, and seamless user interactions**. Built with **Vite, React, and Node.js**.
- Implemented **secure authentication** and **scalable cloud-based data processing** using **AWS services**, including Cognito for user authentication, Lambda for serverless processing, and DynamoDB for efficient data storage.
- Adapted quickly to new technologies and cloud architectures, optimizing performance and scalability while ensuring robust security.

Serves as Reviewer for Top-tier AI & ML Conferences **Oct. 2023 – Present**
AISTATS-2024, ICML-2024, KDD-2024, AAAI-2025, ICLR-2025, ICML-2025

- Provided comprehensive, in-depth reviews to advance the quality of ML research publications.
- Quickly **adapted to new research trends** and evolving methodologies in ML

Lecturer – Data Mining **Jan. 2022 – May 2022**
Wilfrid Laurier University

- Designed and taught a comprehensive **course on Data Mining**, covering theory and real-world applications.
- Received **exceptional student feedback** for clarity, engagement, and effectiveness.

Technical Skills Summary

ML Tools: PyTorch, TensorFlow, Scikit-Learn, JAX, Hugging Face, OpenAI API
ML expertise: Deep learning, Distributed system application, Federated learning, Parallel computation, Optimization, Differential privacy, Large Language Model (LLM).
Programming Languages: Python, `C/C++/C#`, R, Java, JavaScript, SQL, HTML, CSS, VHDL.
Deployment: AWS, Azure, Kubernetes, Docker, DynamoDB, MongoDB, Sealos Cloud, Git.
Full-Stack: React, Vue, Vite, Amplify, Node.js
Soft skill: Leading research teams, progress management for concurrent projects, mentoring junior researchers and providing technical guidance, collaboration with cross-functional teams, delivering impactful presentations and lectures, and expertise in academic writing and publishing.

Publication

[1] **Wang, Ganyu**, Bin Gu, Qingsong Zhang, Xiang Li, Boyu Wang, and Charles X Ling. A unified solution for privacy and communication efficiency in vertical federated learning. *Advances in Neural Information Processing Systems*, 36, 2024.

[2] **Wang, Ganyu**, Miguel Martin, Patrick Hung, and Shane MacDonald. Towards classifying motor imagery using a consumer-grade brain-computer interface. In *2019 IEEE International Conference on Cognitive Computing (ICCC)*, pages 67–69. IEEE, 2019.

[3] **Wang, Ganyu** and Miguel Vargas Martin. Segmentperturb: Effective black-box hidden voice attack on commercial asr systems via selective deletion. In *2021 18th International Conference on Privacy, Security and Trust (PST)*, pages 1–12. IEEE, 2021.

[4] **Wang, Ganyu**, Boyu Wang, Bin Gu, and Charles X. Ling. Event-driven online vertical federated learning. In *International Conference on Learning Representations (ICLR)*, 2025.

[5] **Wang, Ganyu**, Qingsong Zhang, Xiang Li, Boyu Wang, Bin Gu, and Charles X Ling. Secure and fast asynchronous vertical federated learning via cascaded hybrid optimization. *Machine Learning*, 113(9):6413–6451, 2024.

[6] Ke Zhang, **Wang, Ganyu**, Han Li, Yulong Wang, Hong Chen, and Bin Gu. Asynchronous vertical federated learning for kernelized auc maximization. In *Proceedings of the 30th ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, pages 4244–4255, 2024.