

MINGKAI CHEN

Member of Technical Staff, Gyges Labs Inc · San Mateo, California

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EDUCATION

Rochester Institute of Technology, Rochester, NY

Aug 2024 – Dec 2025

Ph.D. program in Electrical and Computer Engineering, Department of Computer Engineering. Advisor: Prof. Dongfang Liu. Research on large language models, multimodal models and generative models for scientific data. Withdrew in December 2025 to join Gyges Labs full time; no degree conferred.

Stony Brook University (State University of New York), Stony Brook, NY

Aug 2020 – Aug 2024

B.S. in Computer Science (degree conferred August 2024; commencement May 2024). Aug 2020 – Jun 2021: first-year coursework completed at Southern University of Science and Technology, Shenzhen, China, under Stony Brook's COVID-19 study-away arrangement (coursework only; credits transferred to Stony Brook). Honors research project: firearm detection in CCTV images using object-detection methods, advisor Prof. Haibin Ling.

EXPERIENCE

Gyges Labs Inc, San Mateo, CA

May 2025 – present

AI-wearables start-up (Vocci, an AI note-taking ring; Halliday AI glasses). Supervisor: Dr. Siyuan Qi, Co-founder and Chief Scientist.

Member of Technical Staff (full time)

Dec 2025 – present

- Research, develop and evaluate the AI algorithms for the company's wearable devices, with primary responsibility for the "native memory" architecture that gives the assistant persistent, context-aware memory: designed the technical blueprint and implemented the core algorithms (memory encoding, consolidation, hybrid retrieval and strategic forgetting), and benchmark the prototype against large-language-model and retrieval-augmented baselines on memory-centric tasks.
- Multimodal integration and continual learning: extend the memory system to the audio and text streams captured by the device, and run continual-learning experiments to balance retention of old context against learning of new context.
- On-device and server optimisation: port and optimise models for the ring's resource-constrained hardware and for server inference; own benchmarking, reliability and scalability testing before releases, including the Vocci launch (August 2026).
- Built Vocci MCP, the Model Context Protocol integration that passes recorded conversation context to third-party AI tools.

Research Intern (part time, summer 2025; full-time RIT co-op placement, fall 2025)

May 2025 – Dec 2025

- Developed the streaming speaker-recognition system that labels who is speaking in live recordings under tight latency and memory constraints.
- Designed the first version of the assistant's memory module, combining structured memory access with LLM-based semantic embeddings so that user-specific context can be recalled across sessions.
- Re-architected the company's AI serving infrastructure, reducing AI infrastructure costs by roughly one third.

Rochester Institute of Technology, Department of Computer Engineering, Rochester, NY

Jan 2024 – May 2025

Graduate Research Assistant (20 h/week; supervisor Prof. Dongfang Liu)

Aug 2024 – May 2025

- Research on generative and language models for scientific data (Diff-PIC; LPI-LLM) and on multimodal models: model design, PyTorch implementation, experiments, analysis and manuscript writing.

Research Associate (part time, remote; supervisor Prof. Dongfang Liu; employed through Datrose Industries, RIT's staffing agency)

Jan 2024 – May 2024

- Led the LPI-LLM project as first author: model design, experiments, benchmark release and manuscript (arXiv:2407.11098).

Stony Brook University, Department of Computer Science, Stony Brook, NY

Jan 2023 – Dec 2023

Student Assistant (part time; supervisor Vibha Mullick)

Jan 2023 – Dec 2023

- Developed and maintained departmental websites and web servers (JavaScript, PHP, CSS, MySQL).

PUBLICATIONS

* *equal contribution*

1. C. Liu, C. Wu, S. Cao, **M. Chen**, J. C. Liang, A. Li, M. Huang, C. Ren, Y. N. Wu, D. Liu, T. Geng. Diff-PIC: Revolutionizing Particle-In-Cell Nuclear Fusion Simulation with Diffusion Models. *International Conference on Learning Representations (ICLR)*, 2025. openreview.net/forum?id=c9z65sDx6M · [arXiv:2408.02693](https://arxiv.org/abs/2408.02693)
2. **M. Chen**, T. Wang, S. Cao, J. C. Liang, C. Liu, C. Wu, Q. Wang, Y. N. Wu, M. Huang, C. Ren, A. Li, T. Geng, D. Liu. Inertial Confinement Fusion Forecasting via Large Language Models. *arXiv preprint*, 2024; under journal review. [arXiv:2407.11098](https://arxiv.org/abs/2407.11098)
3. D. Zhang, J. Yang, H. Lyu, Z. Jin, Y. Yao, **M. Chen**, J. Luo. A Benchmark and Chain-of-Thought Prompting Strategy for Large Multimodal Models with Multiple Image Inputs. *International Conference on Pattern Recognition (ICPR)*, 2024. Lecture Notes in Computer Science, vol. 15318, pp. 226–241, Springer. doi.org/10.1007/978-3-031-78456-9_15 · [arXiv:2401.02582](https://arxiv.org/abs/2401.02582)
4. D. Zhang*, **M. Chen***, C. Li, L. Huang, J. Zhang. Aggregation of Disentanglement: Reconsidering Domain Variations in Domain Generalization. *arXiv preprint*, 2023; under review, *International Journal of Computer Vision*. [arXiv:2302.02350](https://arxiv.org/abs/2302.02350)

PROFESSIONAL SERVICE

- Reviewer, *Neurocomputing* (Elsevier) — 32 manuscripts, 2024–2025.
- Reviewer, *IEEE Transactions on Circuits and Systems for Video Technology* — 7 manuscripts, 2024–2025.
- Reviewer, *Multimedia Tools and Applications* (Springer Nature) — 23 manuscripts, 2024–2025.

PROFESSIONAL MEMBERSHIP

- Sigma Xi, The Scientific Research Honor Society — Associate Member, elected 2025.

TECHNICAL SKILLS

Areas: large language models; multimodal (vision–language) models; diffusion models; speech and speaker recognition; time-series forecasting; on-device model optimisation; ML serving infrastructure.

Languages and tools: Python, PyTorch, CUDA, C/C++, Java, Swift, Julia, JavaScript, PHP, SQL; OpenCV, Docker, ROS, Nginx, Cloudflare Workers, React.

Certification: CodePath iOS Development (2021).

LANGUAGES

English (professional working proficiency) · Mandarin Chinese (native) · Hokkien (native)