

Wei-Han Hui (Ambrose)

Ph.D. · AI/ML Researcher & Engineer · Generative AI · Molecular Simulation

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SUMMARY

Ph.D. and Postdoc-trained AI/ML engineer with hands-on experience spanning healthcare-oriented research (protein mechanics, collagen biomechanics, nucleic acids backmapping from CG to AA) and production-grade engineering (LLM agentic systems, SLM fine-tuning, CI automation). Passionate about bridging computational biology and applied AI to drive real-world impact.

PROFESSIONAL EXPERIENCE

Research Assistant

Apr 2025 – Present

Michigan State University — East Lansing, MI

- Developed a **generative deep-learning model** for RNA structure back-mapping (CG → AA), enabling higher-fidelity structural analysis for downstream biological applications.
- Integrated physics-based constraints with learned representations to preserve stereochemical validity across reconstructed atomic coordinates.
- Collaborated with computational biology team to validate outputs against MD simulation ground truth.

Advanced Algorithm Engineer — Generative AI & Deep Learning

Nov 2023 – Present

ACCTON Technology — Hsinchu, Taiwan · Top-10 market cap on TWSE, ~5,000 employees

- Agentic Platform:** Architected a unified LLM service platform with skill-document-driven deployment — new services can be onboarded without code changes, cutting development cycles by enabling rapid iteration across teams.
 - Company Assistant:** Integrated ERP (leave/helpdesk) and office tools (PDF/CSV/PPT generation) into one conversational interface.
 - Cluster Assistant:** Natural-language server management via Zabbix — engineers no longer need a VPN or on-site PC.
 - Personal Knowledge Assistant:** Designed and implemented a Knowledge Management System within an agentic AI platform.
- LLM-Based CI Testing:** Built a fully automated testing platform covering unit, fuzz, CWE scanning, and commit generation — eliminating manual QA bottlenecks in the CI pipeline.
- SLM Fine-Tuning (LoRA):** Delivered lightweight, cost-efficient classification models for code vulnerability, prompt-injection, and phishing detection — high accuracy at a fraction of large-model inference cost.

Deep Learning Intern — Computer Vision

Jul – Dec 2022

Industrial Technology Research Institute (ITRI) — Hsinchu, Taiwan

- Built **YOLO**-based detection models for imbalanced bee/mite agricultural datasets using custom augmentation and class-weighting to improve minority-class recall.
- Deployed inference pipeline on **Google Cloud Platform** for scalable field monitoring without on-premise hardware.

EDUCATION

Ph.D. in Artificial Intelligence, Dept. of Civil Engineering

Sep 2019 – Aug 2023

National Taiwan University — Taipei, Taiwan

Dissertation: Predicting Mechanical Properties and Mutational Effects of Collagen Molecules and Polymers by Combining Molecular Simulations and Machine Learning

SELECTED PUBLICATIONS

- 2026** • Tough bioinspired composites through bone–bamboo hybrid gradient designs: Simulation, deep learning, and 3D-printing. *Composites Part B: Engineering*.
- 2025** • GraphLOGIC: Lethality prediction of osteogenesis imperfecta on type I collagen by a mechanics-informed graph neural network. *Int. J. Biological Macromolecules*.
- 2024** • Structural basis and synergism of ATP and Na⁺ activation in bacterial K⁺ uptake system KtrAB. *Nature Communications*.
- 2024** • Effects of aging and diabetes on deformation mechanisms of collagen fibrils under daily activity. *Int. J. Biological Macromolecules*.
- 2023** • Unraveling the molecular mechanism of collagen flexibility during physiological warmup using MD simulation and ML. *Computational and Structural Biotechnology Journal*.
- 2022** • Encoding protein dynamic information in graph representation for functional residue identification. *Cell Reports Physical Science*.

TECHNICAL SKILLS

Simulation	LAMMPS, NAMD, VMD, AutoDock Vina, MDAAnalysis, ProDy, OpenMM
Programming	Python (advanced)
ML Frameworks	PyTorch, PyTorch Geometric, Keras, Scikit-learn, XGBoost, HuggingFace Transformers
Architectures	Transformers, Graph Neural Networks (GNNs), Diffusion Transformers (DiT)
Fine-Tuning	LoRA / PEFT
Vibe Coding	Claude Code
Infra & Tools	Docker, Kubernetes, Linux, GitHub, Postman
Cloud & DB	AWS (Lambda, Bedrock), Google Cloud Platform, OpenSearch