

Cheng Wan

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EDUCATION

Cornell University

Ph.D. in Electrical and Computer Engineering

Ithaca & New York, NY

Aug. 2024 – May 2028 (expected)

Georgia Institute of Technology

Master in Electrical and Computer Engineering (GPA: 4.0/4.0)

Atlanta, GA

Aug. 2022 – May 2024

Nanchang Hangkong University

Bachelor in Communication Engineering (GPA: 3.5/4.0)

Nanchang, China

Sep. 2018 – Jun. 2022

RESEARCH INTERESTS

- Multimodal foundation models (LLMs/VLMs): instruction tuning, reinforcement learning (RLHF/PPO/DPO/GRPO), visual reasoning
- Generative AI: diffusion models, text-to-image/video/3D generation, controllable synthesis
- Efficient ML systems: quantization, model compression, distributed training, scalable deployment

SELECTED PUBLICATIONS

Full paper list: Google Scholar

- WASABI: A Metric for Evaluating Morphometric Plausibility of Synthetic Brain MRIs

Bahram Jafraسته*, Wei Peng*, **Cheng Wan**, Yimin Luo, Ehsan Adeli, Qingyu Zhao

[MICCAI 2025]

- Swift Parameter-free Attention Network for Efficient Super-Resolution – 65 citations, 200+ stars

Cheng Wan*, Hongyuan Yu*, Zhiqi Li*, Yihang Chen, Yajun Zou, Yuqing Liu, Xuanwu Yin, Kunlong Zuo

Winner Award & Oral @ NTIRE – [CVPR-W 2024]

- Advancing Sleep Disorder Diagnostics: A Transformer-based EEG Model for Sleep Stage Classification and OSA Prediction

Cheng Wan, Micky C. Nnamdi, Wenqi Shi, Benjamin Smith, Chad Purnell, May Dongmei Wang

[IEEE J-BHI 2024]

- A Multi-scenario Attention-based Generative Model for Personalized Blood Pressure Time Series Forecasting

Cheng Wan, Chenjie Xie, Longfei Liu, Dan Wu, Ye Li

[ICASSP 2024]

RESEARCH EXPERIENCE

Cornell University — Weill Cornell Medicine & Cornell Tech

New York, NY

Ph.D. Student (Advisors: Mert R. Sabuncu; Qingyu Zhao)

Aug. 2024 – Present

- Longitudinal 3D brain MRI progression modeling using latent diffusion model with anatomical guidance; work submitted to IEEE Transactions on Medical Imaging (TMI).
- Collaborating with industry collaborators, we built a puzzle-based visual reasoning benchmark with step-level error detection and VQA task for evaluating reasoning ability of MLLMs; work submitted to ICLR 2026.

Bio-MIBLab, Georgia Tech

Atlanta, GA

Research Assistant (Advisor: May D. Wang)

Jan. 2024 – Jun. 2024

- Transformer-based EEG pipeline for sleep staging and OSA risk; first author published at IEEE J-BHI 2024.
- Developed a knowledge-informed OSA diagnosis model from single-channel oximetry that learns clinically interpretable concepts and integrates patient data, enabling more accurate and transparent predictions; accepted to ACM BCB 2025.

Xu Lab, Carnegie Mellon University

Pittsburgh, PA

Research Intern (Advisor: Min Xu)

May 2023 – Aug. 2023

- Fast image super-resolution with strong restoration-efficiency tradeoff; contributed to ICCV 2023 VOTS robustness track (team top-3).

SIAT, Chinese Academy of Sciences

Shenzhen, China

Research Intern (Mentors: Dan Wu; Ye Li)

Nov. 2021 – Jul. 2022

- Cuff-less blood pressure modeling via ECG/PPG/ICG; multi-scenario forecasting pipeline; publications in ICASSP/EMBC.

TECHNICAL SKILLS

Languages: Python, C/C++, CUDA, SQL.
ML Frameworks: PyTorch, TensorFlow, JAX; Hugging Face (transformers, trl, peft), vLLM, DeepSpeed.
LLMs & GenAI: RLHF (PPO/GRPO/DPO), LoRA/QLoRA, diffusion models (DDPM/LDM), prompt engineering.
Distributed Training: DDP/FSDP, ZeRO; mixed precision, gradient checkpointing; Slurm, Weights&Biases.
Systems & Deploy: Linux, Git, Docker/Apptainer; AWS/GCP/Azure; ONNX/TensorRT; model serving.

TEACHING

Cornell University	Ithaca, NY
<i>Teaching Assistant (Co-lecturer) — ECE 5200/3200 : Foundations of Machine Learning</i>	<i>Spring 2025</i>

COMPETITION ACHIEVEMENTS

- CVPR 2025: NTIRE Efficient Super-Resolution (ESR)
2nd place
- CVPR 2024: NTIRE Efficient Super-Resolution (ESR)
1st place & Oral
- CVPR 2024: NTIRE Image Super-Resolution (x4)
1st place
- CVPR 2024: NTIRE Raw Image Super-Resolution (RawSR)
2nd place
- CVPR 2024: AI4Streaming Real-Time SR (RTSR)
3rd place
- ICCV 2023: Visual Object Tracking Segmentation (VOTS) Robustness Track
3rd place

AWARDS

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|---|-------------|
| – Cornell PhD Fellowship | 2024 – 2025 |
| – Merit Student Scholarship, Georgia Tech | 2022 – 2023 |
| – Outstanding Scholarship, NCHU (Top 1) | 2021 – 2022 |
| – Outstanding Scholarship, NCHU (Top 10) | 2020 – 2021 |

OPEN SOURCE & PROJECTS

- SPAN: Swift Parameter-free Attention Network for Efficient Super-Resolution** | GitHub (200+ stars) 2024
- Open-source efficient super-resolution framework; models won multiple CVPR NTIRE challenge championships.
- MCD-Net: RGB-D Video Inpainting** | GitHub 2023
- First RGB-D video inpainting dataset with authentic data; achieved SOTA accuracy and runtime for joint inpainting.
- Learning Chess from LLMs** | GitHub 2022
- Probed language models’ ability to track world state and reason about chess positions using chess notation.