Stephen Cheng

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EDUCATION

Northwestern University – Evanston, IL

M.S. in Computer Science, GPA 4.00/4.00 — Expected Jun 2025
B.S. in Electrical Engineering, GPA 3.95/4.00 — Expected Jun 2025

Coursework: Advanced Deep Learning, Computer Vision, Graduate Algorithms, Information Theory
Honor Societies: Tau Beta Pi (President), Eta Kappa Nu

SKILLS

Languages: Python, C++, C, Bash, MATLAB, HTML, CSS, JavaScript
Frameworks/Tools: PyTorch, AWS, Docker, SLURM, TensorFlow, OpenCV, Git, Microsoft Excel

EXPERIENCE

Research Assistant — Sep 2023 – Present
MAGICS Laboratory, Prof. Han Liu — Evanston, IL
- Developed a task-aware deep learning module to improve time-series model performance on financial forecasting tasks by ~300%
- Applying directed evolution using MCTS and reinforcement learning to optimize diffusion model generation of 3D antibodies
- Programmed a deep learning framework for financial time-series classification and regression tasks with PyTorch and WandB
- Conducting model training and testing, ablation studies, and hyperparameter optimization on a HPC cluster with SLURM

Teaching Assistant — Sep 2024 – Present
CS 349: Machine Learning, Northwestern University — Evanston, IL
- Explain machine learning algorithms to 150+ students by hosting in-person office hours and addressing online discussion boards

Machine Learning Engineering Intern — Jan 2024 – Mar 2024
NWF Strategies — Palo Alto, CA (Remote)
- Performed data preprocessing on voter data to generate embeddings and fine-tuned an XGBoost model to predict voter attributes
- Prompt-tuned and deployed an email AI assistant that generates custom email responses to AWS ECS

Electrical Engineering Intern — Jun 2023 – Aug 2023
Northrop Grumman Space Systems — Dulles, VA
- Performed voltage drop analyses on satellite bus systems to identify necessary parameters for safe payload input voltages
- Created, verified, and signed off on program requirement matrices in Microsoft Excel and document management softwares

Electrical Engineering Intern — Mar 2023 – Jun 2023
Briteseed — Chicago, IL
- Redesigned 3 PCBs for a new prototype which increased the number of imaging LEDs by 800% without increasing size
- Debugged faults with the device's circuitry that had been preventing signal processing analysis on the device for months

Research Assistant — Apr 2022 – Mar 2023
Mohseni Laboratory, Prof. Hooman Mohseni — Evanston, IL
- Created an algorithm for automating the testing of memristor devices that iteratively determines and executes the next scan
- Analyzed data trends for thousands of scans on hundreds of devices in Python

PROJECTS

Sign Language Interpreter | *C++, Python* — Mar 2024 – Jun 2024
- Created an RTOS device on the ESP32 with an embedded sign language classification model and a backend server on AWS ECS
- Collected real time training data, performed data preprocessing, and trained a sign language model on 34 classes; 70% F1 score

ProjectX 2023 Undergraduate Research Competition | *Python, PyTorch* — Sep 2023 – Jan 2024
- Benchmarked parameter efficient fine-tuning methods for transformers on NLP tasks with DistilBERT; 3rd place

Neural Networks for Image Classification | *Python, PyTorch, C++* — Aug 2023 – Sep 2023
- Fine-tuned VGG, ResNet, and MobileNet models on CIFAR-10 and compared performance with a custom lightweight CNN
- Implemented from scratch an MLP, backpropagation, and training in Python and C++ to compare compute times on MNIST

Northwestern Solar Car Team — Sep 2021 – Sep 2023
- Designed the light controller PCB, supported solar array and motor controller testing, and devised workshops for new members

PAPERS & MANUSCRIPTS (* equal contribution)

- Li, W*. **Cheng, S***. et al. (2024). A Benchmark Study for Limit Order Book (LOB) Models and Time Series Forecasting Models on LOB Data. *International Conference on Learning Representations 2025* (Under Review)
- Baldwin, J*. Hu, B*. Veljanovski, M*. Zhang, M*. **Cheng, S***. Pi, S*. (2024). FAST: Feed-Forward Assisted Transformers for Time Efficient Fine-Tuning