

Heng-An Cheng

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EDUCATION

National Taiwan University (NTU), Taipei, Taiwan *Sep 2026 – Present*
M.S. in Communication Engineering, Computer and Network Engineering Group

National Yang Ming Chiao Tung University (NYCU), Hsinchu, Taiwan *Sep 2022 – Jun 2026*
B.S. in Electrical Engineering, Minor in Computer Science *GPA: 4.04/4.30*
Courses: Machine Learning, NLP, Data Science, Operating Systems, Algorithms, Computer Networks, Computer System Administration, Reinforcement Learning, Digital Signal Processing

University of Illinois at Urbana-Champaign (UIUC), Exchange Program *Jan 2025 – May 2025*
Courses: Text Information Systems, Applied Parallel Programming, Algorithms, Real-World Algorithms for IoT
Applied CUDA-based parallel programming and developed projects in text information systems and IoT algorithms.

WORK EXPERIENCE

VIVOTEK Inc., Intern Software Engineer *Jan 2024 – Feb 2024*

- Researched and prototyped the integration of Large Language Models (LLMs) with Retrieval-Augmented Generation (RAG) for intelligent FAQ chatbot systems.
- Developed an LLM-based FAQ system using Retrieval-Augmented Generation (RAG) to retrieve and summarize information from product manuals.

RESEARCH EXPERIENCE

Financial Knowledge Graph with LLMs, Advisor: Prof. Hong-Han Shuai *Sep 2024 – Jan 2025*

- Designed a pipeline to extract structured financial entities from unstructured PDFs of company reports using LLM-powered prompt workflows.
- Constructed knowledge graphs and applied them as contextual input for RAG-based LLM applications.

PROJECTS

GPU Convolution Kernel Optimization *Spring 2025*

- Optimized convolution operations using CUDA and GPU parallelization techniques.
- Explored thread/block configurations and memory access patterns to improve GPU kernel performance.

STM32F4 Bejeweled Game (github.com/hacheng0193/STM32F4-Term-Project-Bejeweled-Game) *June 2023*

- Implemented core Bejeweled game logic (tile swap, match detection, scoring) on STM32F407VG.
- Integrated an ILI9341 touch screen for both graphical output and user input via touch gestures.
- Developed in C/C++ using Keil MDK-ARM development tools.

FPGA Tetris (IMU Tilt Control) (github.com/hacheng0193/FPGA-final-project-Tetris) *May 2023*

- Developed a fully functional Tetris game in Verilog for Nexys DDR4 (Artix-7) FPGA.
- Used onboard MPU-6050 IMU via SPI to enable tilt-based left/right movement.

SKILLS

- **Languages/Tools:** Python, C/C++, Shell Script, Git, Linux, Docker, Kubernetes
- **Networking/Systems:** TCP/IP, Socket Programming, HTTP, Client-Server Architecture, Edge Computing
- **Parallel Computing:** CUDA, GPU Programming, Parallel Programming
- **AI/ML:** Machine Learning, NLP, LLM, RAG, Prompt Engineering, Data Mining, Web Crawling

ACTIVITIES & LEADERSHIP

President, Go Club, NYCU *Sep 2023 – Aug 2024*
Planned and led weekly club sessions, organized new student orientation, managed the exhibition booth, and coordinated the Mei-Chu Go exhibition match.

Sports Participation *Sep 2022 – Present*
Previous member of NYCUEE department's baseball, badminton, and table tennis teams.