

# Hong Sng

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## EDUCATION

### Carnegie Mellon University

Aug 2021 – Dec 2024

*Bachelor of Science in Computer Science (Honors), Additional Major in Logic (GPA: 3.7/4.0)*

- Systems Concentration: Advanced Operating Systems, Distributed Systems (PhD), Databases, Cloud Computing
- Machine Learning Concentration: Gen. AI, Deep Learning, Natural Language Processing, Autonomous Agents

## EXPERIENCE

### Data Reliability Engineering Intern

May 2024 – Aug 2024

*Citadel*

- Still compiling...

### Back-End Systems Infrastructure Engineering Intern

May 2023 – Aug 2023

*LinkedIn*

- Developed Azure cloud graph query proxy in Golang, Java for 30ms latency at 2K QPS for Microsoft Fabric
- Designed gRPC microservice with Redis caching, Kubernetes autoscaling, CosmosDB fault tolerance and recovery
- Raised throughput by 10x for federated and asynchronous graph queries in Apache Spark, such as PageRank

### Full-Stack Web Developer Intern

May 2021 – Aug 2021

*Novocall*

- Integrated messaging API for CRM tool on Ruby on Rails, React, PostgreSQL app, increasing profits by 10%
- Built frontend UI with React, backend APIs with jQuery, Axios, PostgreSQL and end-to-end tested with Rspec

### Front-End Engineering Intern

Nov 2020 – Apr 2021

*Novena*

- Built and scaled e-commerce engine with Next.js, Tailwind frontend, Serverless backend spurring sales by 15%
- Drove responsive web design, mobile optimization, server-side rendering overhauls, speeding up page loads by 40%

## SERVICE

### Teaching Assistant

Jan 2022 – Present

*Carnegie Mellon University School of Computer Science*

- Algorithm Design and Analysis: advanced algorithm modelling, paradigms, probabilistic analysis for 200 students
- Distributed Systems: large-scale system design, networking, distributed compute in C, Java, Go for 600 students
- CS Fundamentals (Events Lead): data structures, OOP, graphics in Python, hackathons with HRT for 1K students

## RESEARCH

### Research Assistant

Jan 2024 – Present

*Carnegie Mellon University Computational Historical Linguistics L-Lab*

- Performed probabilistic synthetic language generation of 10K-word datasets for groundbreaking ACL Paper
- Fine-tuned GPT-4 LLM, feature engineering for language ancestry, sound law inference in Python at 81% accuracy

## PROJECTS

### Multimodal AI Webtoon Generator | *Python, Django, GPT-4, DALL-E, SQLite*

Dec 2023 – Present

- Created architecture for real-time text, image, music generation in <1s in infinite-scroll webtoon powered by LLMs

### Autonomous Hydroponics Greenhouse System | *Python, PyTorch, ROS2, Raspberry Pi*

Aug 2023 – Dec 2023

- Deployed hardware sensors, actuators, computer vision and ML model to monitor and grow 50 radishes, turnips

## SKILLS

**Languages:** Python, Go, Java, C, C++, C#, Rust, Scala, Ruby, JavaScript, HTML, CSS, Bash, SML, Lean, SQL

**Tools:** Azure, AWS, Google Cloud, Kubernetes, Docker, Linux, Apache Spark, Kafka, Samza, Hadoop, MongoDB

**Libraries:** PyTorch, TensorFlow, GPT, Hugging Face, OpenCV, NLTK, Django, Rails, React, Flask, NumPy, Pandas