

Cheng-An Hsieh

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Education

Carnegie Mellon University (CMU)

Master of Science in Artificial Intelligence Engineering

Pittsburgh, PA

Dec. 2024 (exp.)

National Taiwan University (NTU)

Master of Science in Computer Science (GPA: 4.00/4.00)

Taipei, Taiwan

July 2022

Bachelor of Science in Engineering (GPA: 3.76/4.00)

June 2020

- Coursework: Algorithms, Data Structure, Game Programming, Interactive Web Programming, Computer Vision, Digital Image Processing, Machine Learning, Applied Deep Learning, Web Retrieval and Mining

Intern Experience

Verizon Media (Yahoo!)

Summer Intern, Search and Ads Team

Taipei, Taiwan

July 2021 - Aug. 2021

- Collected data through SQL queries and analyzed users' favorite websites based on click rates.
- Implemented BERT model to detect users' intentions and achieved higher F1-Score than the previous system.
- Reduced search latency and accelerated the model inference by ONNX Runtime.

Computer system and Communication Lab, Academia Sinica

Summer Intern, Supervised by Prof. Jan-Ming Ho

Taipei, Taiwan

July 2019 - Aug. 2019

- Collected 20 users' electrocardiogram (ECG) signals with Acer smartwatch, which complied with IRB regulations.
- Implemented auto-encoder as a noise filter and applied end-to-end RNN model for ECG Authentication.

Honors & Awards

Chinese Handwriting Recognition Competition 4th Place out of 468 Teams

June 2021

- Built a real-time image recognition server using Python Flask to receive and process images.
- Designed an EfficientNet-based neural model achieving 98.6% accuracy in classifying handwriting images.

Medical Decision Prediction Competition 4th Place out of 368 Teams

June 2021

- Developed a MacBERT-based framework for disease risk assessment and question answering.

TSMC x Microsoft Careerhack 1st Place out of 1000+ Teams

Jan. 2021

- Designed a COVID-19 chatbot and provided medical information using the Azure Cloud Platform with LUIS model.
- Launched the chatbot on Meta Messenger and collected user responses for dynamic model retraining.

Research Experience

CyLab, CMU

Graduate Research Assistant, Supervised by Prof. Marios Savvides

Pittsburgh, PA

Sept. 2023 - Present

- Developed a multimodal pipeline for fine-grained product class recognition through text and image fusion.

Information Retrieval Lab, NTU

Graduate Researcher, Supervised by Prof. P.J. Cheng

Taipei, Taiwan

Sept. 2020 - July 2022

- Utilized Wikipedia to generate three types of text-based queries with different modality information.
- Built a multimodal training paradigm with contrastive loss and achieved 50.7 MRR@10 for mixed query.

Mobile & HCI Lab, NTU

Undergraduate Researcher, Supervised by Prof. Mike Y. Chen

Taipei, Taiwan

July 2018 - Feb. 2020

- Developed a board game app using React Native that allows users to share their favorite games.
- Designed a Unity exergame utilizing wearable sensors, resulting in a 5.96 out of 10 increase in entertainment level and a 10% improvement in training tempo accuracy, from 64% to 74%.

Publications

- **Cheng-An Hsieh**^{*}, Cheng-Ping Hsieh^{*}, and Pu-Jen Cheng, "Mr. Right: Multimodal Retrieval on Representation of Image with Text", published in the arXiv [\[arXiv\]](#)
- Sih-Pin Lai, **Cheng-An Hsieh**, Yu-Hsin Lin, Teepob Harutaipee, Shih-Chin Lin, Yi-Hao Peng, Lung-Pan Cheng, and Mike Y. Chen, "StrengthGaming: Enabling Dynamic Repetition Tempo in Strength Training-based Exergame Design", published in the *22nd International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI '20)* [\[MobileHCI '20\]](#)

Skills

Programming Languages Python(Pytorch), JavaScript/Typescript, C#, HTML/CSS, C/C++, SQL, \LaTeX

Software Knowledge Postgresql, Apache Spark, Unity, React Native, Android Studio, WordPress, Git, ONNX, MongoDB, Firebase