

SHANG-YI CHUANG

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Seek full-time jobs in **Machine Learning Engineer** and **Data Scientist** in 2022.

EDUCATION

Cornell Tech

2021 – Present

- M.Eng. in **Computer Science**
- Merit-Based Scholarship
- Courses: Algorithms and Data Structures for Applications; Applied Machine Learning; Deep Learning; Natural Language Processing; Data Science in the Wild

National Taiwan University, GPA: 3.86/4.30

2012 – 2017

- B.S., Major in Mechanical Engineering, Minor in Electrical Engineering
- Dean's List Award (Top 5% of the class in GPA)

WORK EXPERIENCE

Research Assistant at Academia Sinica in Taiwan

2018 – 2021

- Improved the applicability of deep-learning-based models on embedded systems.
- Addressed asynchronous and low-quality data in multimodal problems.
- Ported numerous existing systems from Keras, TensorFlow, and MATLAB into Pytorch.
- Published **5 papers** including 1 top-notch IEEE/ACM journal and 4 conferences.
- Supervised the environment setup of dataset construction for collaborative labs and schools.
- Took the initiative to be server manager, paper writing mentor, journal reviewer, and internship supervisor.

SKILLS

Programming Language

Python, C, MATLAB, Bash, Visual Basic, SQL

Machine Learning Framework

PyTorch, Keras, TensorFlow, scikit-learn

Toolbox

Dlib, OpenCV, FFmpeg, Hugging Face, SoX, Praat, librosa, pandas

Visualization

visdom, Matplotlib, plotly, gnuplot, Inkscape, Visio

PROJECTS

Audio-Visual Multimodal Learning Projects (Python, MATLAB, Bash, Pytorch, Keras, TensorFlow)

- Improved the robustness of deep-learning-based systems in a car-driving scenario.
- Addressed privacy problems and additional processing costs.
- Reduced the size of multimodal data to 0.33% without sacrificing the speech enhancement performance.
- Constructed an open source dataset named Taiwan Mandarin Speech with Video.

Self-Supervised Learning on Speech Enhancement (Python, MATLAB, Bash, Pytorch)

- Improved 43% of the speech quality by applying a denoising autoencoder with a linear regression decoder.
- Required only unlabeled data which encourages the realization of unsupervised deep learning systems.

Cross-Lingual Movie QA System (Python, Bash, Pytorch)

- Implemented transfer learning with additional English corpus to enhance a Mandarin QA System.
- Realized zero-shot learning on Mandarin Movie QA tests.

EMA (Electromagnetic Midsagittal Articulography) Projects (Python, MATLAB, Bash, Pytorch, Keras)

- Verified the effectiveness of the articulatory movement features of EMA in speech-related tasks.
- Improved the character correct rate of automatic speech recognition by 30% in speech enhancement tasks.
- Incorporated EMA into speech synthesis systems and achieved 83% preference in a subjective listening test.

Dynamics of Robot Arms (Python, C, Bash)

- Smoothed the velocity profiles and trajectories of robot arms even when external forces exist.
- Realized a safer human-robot environment by applying biological statistics results.