# 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

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|---|---|
| **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 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 effectivess 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 achived 83% preferance in a subjective listening test.

**Dynamics of Robot Arms** (Python, C, Bash)
- Smoothed the velocity profiles and trajectories of robot arms.
- Realized a safer human-robot environment by applying biological statistics results.