SHANG-YI CHUANG

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SUMMARY OF QUALIFICATIONS

Extremely self-motivated engineer with excellent understanding of machine learning algorithms.

- 5+ years experience in developing software programs for scientific research.
- 3+ years experience in **Speech**, **Computer Vision**, and **Natural Language Processing**.
- Strong expertise in deep learning frameworks including **PyTorch**, **TensorFlow**, **Keras**, and **scikit-learn**.

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, Security and Privacy Concepts 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)

Osaka University, Grade: Highest grade 2016 – 2017

- Frontier Lab Special Auditor in Adaptive Machine Systems
- Japan Student Services Organization Scholarship

WORK EXPERIENCE

Research Assistant at Academia Sinica in Taiwan 2018 – 2021

- **Audio-Visual Multimodal Learning Projects** (IEEE/ACM TASLP, INTERSPEECH 2020)
  · Improved the system robustness against insufficient hardware or inferior sensors in a car-driving scenario.
  · Minimized additional multimodal processing costs while addressing privacy problems of facial data.
  · Significantly reduced the size of data to 0.33% without sacrificing the speech enhancement performance.
- **EMA (Electromagnetic Midsagittal Articulography) Projects** (ISCAS 2021, EUSIPCO 2021)
  · Addressed silent speech for patients with vocal cord disorders or high-noise environments.
  · 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.
- **Cross-Lingual Movie QA System**
  · Focused on reducing unfavorable inequalities in technology caused by limited data in minority languages.
  · Implemented transfer learning with additional English corpus to enhance a Mandarin QA System.
  · Achieved zero-shot learning on Mandarin Movie QA tests.
- **Self-Supervised Learning on Speech Enhancement**
  · Aimed at realizing speech enhancement without limited intrusive paired data.
  · Improved 43% of speech quality by applying a denoising autoencoder with a linear regression decoder.
  · Greatly encouraged the realization of unsupervised deep learning systems.
- **Construction of Multimodal Datasets**
  · Highly addressed multimodal common problems of asynchronous devices.
  · Supervised crucial environment setups for collaborative labs, schools, and hospitals.
  · Published Taiwan Mandarin Speech with Video, an open source dataset including speech, video, and text.

SKILLS

Programming Language	Python, C, MATLAB, Bash, Visual Basic, SQL, LabVIEW, Verilog
Toolbox	Dlib, OpenCV, FFmpeg, Hugging Face, SoX, Praat, librosa, pandas
Visualization	visdom, Matplotlib, plotly, gnuplot, Inkscape, Visio