CHINPO CHEN

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EDUCATION

National Tsing Hua University, Electronic Engineering, *PhD*, GPA: 3.9/4.3 2017.09 – now
National Tsing Hua University, Electronic Engineering, *bachelor*, GPA: 3.7/4.3 2011.09 - 2015.06

CAREER

National Tsing Hua University, Information Technology (IT) 2017.09 - 2022.03

- Duty: Lab computer server purchasing, installation, security, and web service establishment.

Duke Kunshan University, Intern 2018.07 - 2018.09

- Duty: Medical-AI solution development on diagnosis of Autism Spectrum Disorder

Industrial Technology Research Institute, Intern 2014.07 - 2014.09

- Duty: Assisting data collection and arrangment

SKILLS

- **4+ years** for AI solution development including: Speech Signal Processing, Natural Language Processing, Statistical testing, and machine learning/Deep learning model development, Explainable AI.
- **3+ Automatic Speech Processing（ASR)**: GMM-HMM model, TDNNf-HMM model, end-to-end models
- Familiar with AI pipeline: Data collecting, Data pre-processing, ML model training, model testing and verifying.
- Experienced in speech related applications: spectral feature extraction, Speaker verification, Speaker Diarization.

PROJECT

Automatic speech recognition (ASR), https://reurl.cc/vgkDLa

- Develop using Kaldi as backend, managing project with gitlab CI/CD, Colaboration with other module by using Docker

Taiwanese forced aligner

- Use Kaldi as backend for ASR model training, and perform forced alignment on Taiwanese speech data

Taiwanese Hakka fluency assessment 分

- In this project I train a ASR model using HTK toolkit to extract the phone boundary from audio files that contains the examiner's pronounciation in the Taiwanese Hakka test.

Research: Developing AI solution for the assessment and diagnosis of Autism Spectrum Disorder

- Managing the cooperation project funded by the Ministry of Science and Technology
- Developing AI solution for assessment and diagnosis of Autism Spectrum Disorder. Including: Autism database collection, research design, technical research paper writhing; AI algorithm development including: Speech signal processing, Computer vision, Natural language processing, design of DNN model architecture,

TECHNICAL SKILLS

AI tools	pytorch、tensorflow、sklearn、Kaldi
Software coding & management	Shell script、linux、Python、C/C++、git、CI/CD
Cloud AI	AWS、Ansible、Docker
Language	Mandarin: Mother tongue、English: proficient (TOEFL ibt 97)

Special Experiences

The SLT 2021 children speech recognition challenge	2021
lecturing: Introduction to human center computing	2018 - 2019
Formosa Speech in the Wild	2018
Teaching assistant (probability, speech signal processing)	2017 - 2018
National Taiwan Normal University introduction to Python programming lecturer	2017
English presentation competition at Ritsumeikan University: IEEE Student Branch	2016

Honors & Awards

Scholarship: Elite-Well Education Foundation Scholarship	2020
Scholarship: President Scholarship of NTHU	2017
Scholarship: FUJIFILM Business Innovation scholarship	2016
Scholarship: Jelinek Summer Annual (workshop) on Language Technologies (JSALT)	2015

- **Johns Hopkins summer school & workshop**: Annual summer school & workshop for speech signal processing

Publications

PhD dissertation: **Experise- and distribution- based AI infrastructure establishment for Explainable AI**

- instructor: Chi Chun, Lee

Journal papers <first author>

[1] **Chen, Chin-Po**, Susan Shur-Fen Gau, and Chi-Chun Lee. "Toward differential diagnosis of autism spectrum disorder using multimodal behavior descriptors and executive functions." Computer Speech & Language 56 (2019): 17-35. **Impact Factor: 2.116; Rank: 71/137 (2020)**

[1] **Chen, Chin-Po**, Susan Shur-Fen Gau, Ho-hsien Pan and Chi-Chun Lee. "Using Measures of Vowel Space for Autistic Traits Characterization" (under review at IEEE/ACM Transactions on Audio, Speech, and Language Processing 2022)

[1] **Chen, Chin-Po**, Wei-Tung Hsu, and Chi-Chun Lee. "Concealing Dementia State of ASR Models by Node Toggling with Cancellation Network" (under review at IEEE Signal Processing Letters 2023)

[1] **Chen, Chin-Po**, Jeng-Lin Li and Chi-Chun Lee. "Learning-based location privacy protecting strategy for downstream speech applications" (under review at ACM Transactions on Multimedia Computing 2023)

Conference papers <first author>

[2] **Chen, Chin-Po**., Tseng, X. H., Gau, S. S. F., & Lee, C. C. "Computing Multimodal Dyadic Behaviors During Spontaneous Diagnosis Interviews Toward Automatic Categorization of Autism Spectrum Disorder." INTERSPEECH. 2017.

[3] **Chen, Chin-Po**, Susan Shur-Fen Gau, and Chi-Chun Lee. "Learning Converse-Level Multimodal Embedding to Assess Social Deficit Severity for Autism Spectrum Disorder." 2020 IEEE International Conference on Multimedia and Expo (ICME). IEEE, 2020.

Conference papers <coauthor>

[4] Liu, Y. S., **Chen, C. P.**, Gau, S. S. F., & Lee, C. C. (2018, April). Learning lexical coherence representation using LSTM forget gate for children with autism spectrum disorder during story-telling. In 2018 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) (pp. 6029-6033). IEEE.

Google Scholar Profile `https://scholar.google.com.tw/citations?hl=zh-TW&user=eNlb04kAAAAJ`

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學歷

國立清華大學，電機系-系統組，博士 2017.09 – 現今

國立清華大學，電機系-系統組，碩士, 碩士逕讀博士學位 2015.09 - 2017.06

國立清華大學，電機系，學士, 2011.09 - 2015.06

工作經驗

新竹: 清華大學 SPARK 實驗室，Information Technology (IT) 2017.09 - 2022.03

- 工作內容：實驗室硬體採購、安裝、資安、軟體服務架設。

中國蘇州: 中國昆山杜克大學，實習生 2018.07 - 2018.09

- 工作內容：執行醫療 AI 輔助自閉症診療的研究

新竹：工業工程研究院，研究助理 2014.07 - 2014.09

- 工作內容：協助資料測量與整理

技能經驗

- **4+ 年經驗** AI 演算法解決方案開發內容包括：語音訊號處理、自然語言處理、機率統計模型、機器學習與深度學習模型、解釋型 AI。
- **3+ 語音辨識 (ASR) 經驗**: GMM-HMM model,TDNNf-HMM model, Transfer learning, Multi-task learning, Language model, end-to-end model
- 熟悉 AI pipeline：資料蒐集篩選、資料結構化、深度網路模型訓練、模型測試與驗證。
- 有經驗在於語音應用：頻譜特徵抓取，Speaker verification, Speaker Diarization。

研究與專案

自動化語音辨識系統 (ASR) 開發，https://reurl.cc/vgkDLa

- 使用 Kaldi 架構設計 ASR 系統後端、整合 CI/CD、並包裝成 Docker 與其他組別負責的 api 對接

閩南語 forced aligner

- 使用 Kaldi 架構訓練閩南語的 ASR 模型來進行 forced alignment 的任務

閩客語流暢度評分

- 我負責的部分使用 HTK 套件訓練客家語言的 ASR 模型來進行 forced alignment，從受試者念閩客語的語音檔抓取閩客語考試的讀音出現的部份

研究：開發 AI 解決方案來量化評估自閉症

- 執行與台大醫院醫師合作之科技部研究計畫
- 開發 AI 應用於醫療臨床自閉症的解決方案，內容包括：資料庫蒐集建制、實驗驗證設計、期刊論文撰寫；演算法開發，包括：語音訊號處理、機器視覺、自然語言處理、深度學習模型

程式語言/熟悉工具

AI 機器學習套件	Pytorch、TensorFlow、Sklearn、Kaldi
程式 & 專案管理	Shell script、Linux、Python、C/C++、Git、CI/CD
雲端 AI 部署	AWS、Ansible、Docker
語言	中文：母語、英文: 精通 (托福 ibt 97 分)

特殊經驗

中國兒童語音辨識競賽 (SLT challenge 2019)	2021
電機系實驗室參訪講師	2018 - 2019
台灣中文語音辨識比賽 (FSW challenge 2018)	2018
電機系課程 (機率、語音訊號處理) 助教	2017 - 2018
台灣師範大學 Python 學習工作坊講師	2017
立命館大學 IEEE 學生英語簡報比賽	2016

榮譽獎章

Scholarship: 財團法人平安菁英教育基金會菁英獎學金	2020
Scholarship: 國立清華大學校長獎學金	2017
Scholarship: 財團法人全錄文教基金會學術獎學金	2016
Scholarship: Jelinek Summer Annual (workshop) on Language Technologies (JSALT)	2015

- **Johns Hopkins 大學暑期工作坊**：關於機器學習、語音訊號應用處理方面的交會

著作目錄

博士論文: **以專業知識與資料學習為核心建立 AI 框架的可解釋 AI**

- 指導老師：李祈均

國際期刊論文 < 第一作者 >

[1] **Chen, Chin-Po**, Susan Shur-Fen Gau, and Chi-Chun Lee. "Toward differential diagnosis of autism spectrum disorder using multimodal behavior descriptors and executive functions." Computer Speech & Language 56 (2019): 17-35. **Impact Factor: 2.116; Rank: 71/137 (2020)**

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[1] **Chen, Chin-Po**, Wei-Tung Hsu, and Chi-Chun Lee. "Concealing Dementia State of ASR Models by Node Toggling with Cancellation Network" (under review at IEEE Signal Processing Letters 2023)

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[2] **Chen, Chin-Po**., Tseng, X. H., Gau, S. S. F., & Lee, C. C. "Computing Multimodal Dyadic Behaviors During Spontaneous Diagnosis Interviews Toward Automatic Categorization of Autism Spectrum Disorder." INTERSPEECH. 2017.

[3] **Chen, Chin-Po**, Susan Shur-Fen Gau, and Chi-Chun Lee. "Learning Converse-Level Multimodal Embedding to Assess Social Deficit Severity for Autism Spectrum Disorder." 2020 IEEE International Conference on Multimedia and Expo (ICME). IEEE, 2020.

國際研討會論文 < 共同作者 >

[4] Liu, Y. S., **Chen, C. P.**, Gau, S. S. F., & Lee, C. C. (2018, April). Learning lexical coherence representation using LSTM forget gate for children with autism spectrum disorder during story-telling. In 2018 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) (pp. 6029-6033). IEEE.

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