HAN-YUN(HENRY) YEH

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github.com/henry034/

EDUCATION

Carnegie Mellon University Silicon Valley, CA *Feb. 2021 - Dec. 2022*

- M.S. in Software Engineering

National Chiao Tung University Hsinchu, Taiwan *Sep. 2016 - June 2019*

- M.S. in Communications Engineering (GPA: 4.02/4.3)

National Taipei University Taipei, Taiwan *Sep. 2012 - June 2016*

- B.S. in Communications Engineering (Rank: 1^{st}, GPA: 3.72/4.0)

HORNORS AND AWARDS

Research

· **6^{th} Place** (2017) - IJCNLP Shared Task 2 [3] - Taipei, Taiwan
· **1^{st} Place** (2015) - NTPU CE Senior Project Competition - Taipei, Taiwan
· **Best Paper Award** (2014) - Oriental COCOSDA [4] - Phuket, Thailand

Academic

· **Phi Tau Phi Award** (2016) - The Phi Tau Phi Scholastic Honor Society, Taipei Taiwan
Award for top-ranked student in CE department among all classes
· **Dean's List** (Fall '12, Fall '15) - NTPU CE Dept. - Taipei, Taiwan
· **Scholarship** (2014) - Elytone Electronic CO., LTD. - Taipei, Taiwan
· **Honorable Mention** (2014) - Taiwan National Collegiate Programming Contest - Taipei, Taiwan

RESEARCH EXPERIENCE

National Chiao Tung University Hsinchu, Taiwan
Graduate Student/Research Assistant, Speech Processing Lab *Sep. 2016 - Jan. 2019*

· Chinese pinyin to character language model using deep learning [1]

  – Experimented with sequence labeling (TDNN and BLSTM joint learning with word boundary prediction) and seq2seq (Transformer) models to minimize Chinese pinyin to character recognition issues
  – Preprocessed data from Wikipedia, LDC Chinese Gigaword, and Sinica corpus by utilizing high precision CRF-based Chinese parser and rule-based G2P (character to pinyin) systems, resulting in a reduction of the character's error rate to 5.6%

· Dimensional sentiment analysis for Chinese phrases (DSAP) [3]

  – Achieved a mean rank of 6.5 among 24 submissions on Chinese phrases' valence and arousal prediction problems using the proposed order-aware word2vec and BLSTM models with the CAVT (Chinese Valence-Arousal Text) corpus

· Child Speech Impairment Supporting System

  – Collected and analyzed approximately 200 samples from children and implemented a Java GUI based corpus recording system for children with speech impediments in coordination with NTU Hospital Hsinchu

National Taipei University Taipei, Taiwan
Research Assistant, Speech and Multimedia Signal Processing Lab *Sep. 2012 - June 2016*

· *"An Automatic Grade Input System via Voice"*

  – Constructed a speech recognition system that featured energy-based voice activity detection and a beam-forming noise cancellation module to enter student's grades automatically. The project was awarded 1st place in NTPU CE Senior Project Competition

· Mandarin prosody generation [2][4]

  – Investigated improving CRF-based base-phrase chunk features and punctuation confidence in Mandarin text-to-speech system
  – Labeled base-phrase chunk features by using CRF-based base-phrase chunker
  – Generated CRF-based punctuation confidence for each lexical word boundary from input text tagged with Chinese word boundaries, part of speech (POS), and base-phrase chunk to measure the likelihood of inserting a punctuation mark (PM)
  – Applied the above features in a MLP-based prosody generator and confirmed that the RMSE for predicting logF0, syllable duration, energy level, and pause duration were reduced

PUBLICATIONS

[1] **Han-Yun Yeh**. "end-to-end pinyin to character language model using self-attention mechanism". Master's thesis, National Chiao Tung University, 2019

[2] Chen-Yu Chiang, Yu-Ping Hung, **Han-Yun Yeh**, I-Bin Liao, and Chen-Ming Pan. Punctuation-generation-inspired linguistic features for Mandarin prosody generation. *EURASIP Journal on Audio, Speech, and Music Processing*, 2019(1):4, 2019

[3] Yen-Hsuan Lee, **Han-Yun Yeh**, Yih-Ru Wang, and Yuan-Fu Liao. Nctu-ntut at ijcnlp-2017 task 2: Deep phrase embedding using bi-LSTMs for valence-arousal ratings prediction of Chinese phrases. In *Proceedings of the IJCNLP 2017, Shared Tasks*, pages 124–129, 2017

[4] Yu-Ping Hung, **Han-Yun Yeh**, I-Bin Liao, Chen-Ming Pan, and Chen-Yu Chiang. An Investigation on linguistic features for Mandarin prosody generation. In *2014 17th Oriental Chapter of the International Committee for the Co-ordination and Standardization of Speech Databases and Assessment Techniques (COCOSDA)*, pages 1–5. IEEE, 2014

WORK EXPERIENCE

Novatek, Inc Hsinchu, Taiwan
Software Firmware Engineer *Aug 2020 - June 2021*

· Integrated verification report feature for audio/DSP part of latest SmartTV SoC IC.
· Optimizied DTS audio algorithm using Tensilia Hifi2/Hifi4 DSP processor.

IBM, Inc Taipei, Taiwan
Application Developer *June 2018 - Oct. 2018*

· Organized health knowledge collected from the internet using text processing techniques and designed rule-based health information suggestions using Python according to user's information with data from a wearable device or entered manually by the user
· Designed a backend infrastructure to collect and analyze website user behavior by means of JavaScript, Python, PHP, MongoDB, MySQL and deployed service on AWS

Application Developer Intern *Jul. 2017 - Aug. 2017*

· Implemented an automated optical inspection (AOI) algorithm to detect defects in circuit board labels using Python with OpenCV

TEACHING AND ADVISING EXPERIENCE

Teaching Assistant, *National Chiao Tung University* Sep. 2016 - Jan. 2018

· "Principle of Microcomputer" course taught by Prof. Yi-Ru, Wang Sep. 2017 - Jan. 2018
· "Logic Design and Lab" course taught by Prof. Yi-Ru, Wang Sep. 2016 - Jan. 2017

Teaching Assistant, *National Taipei University* Feb. 2015 - June 2016

· "Physics Lab" course taught by Prof. Cheng-Yu, Chiang Feb. 2015 - June 2016

ACTIVITIES

2020 Formosa Grand Challenge Taipei, Taiwan
Participant *Nov. 2019 - Apr. 2020*

· Build a model and labeled data to solve various Chinese reading comprehension tasks using PyTorh and developed a rule-based dialog system to solve a conversation problem with 20 different domains
· Achieved 3rd place and won $10,000 prize.

The 5th Pixnet Hackathon Taipei, Taiwan
Participant *Aug. 2018*

· Developed a web-based application to find popular dishes by using Google AIY Voice Kit and information from text mining 200,000 Pixnet food blogs

NTPU CE Student Association Taipei, Taiwan
Director of Information Management *Sep. 2013 - June 2015*

· Managed student information system and designed advertising photo to promote the activities of the student association
· Organized procedures, activities, and lectures for freshman orientation

Leader of Curriculum-design Section *Feb. 2015*

· Designed curriculum to build a DIY IR remote, speaker/microphone, and PC customization for the first NTPU CE winter camp

The International Collegiate Programming Contest Jakarta, Indonesia
Participant *Dec. 2014*

· Placed 29th out of 70 teams at the ACM-ICPC Asia Jakarta Regional Contest

TECHNICAL STRENGTHS

Computer Languages	Python, C, Java, Javascript, PHP
Databases	MySQL, PostgreSQL
Frameworks	TensorFlow, Pytorch
Package	OpenCV
Cloud service	AWS