

# HAN-YUN(HENRY) YEH

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github.com/henry034/

## EDUCATION

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|---|-----------------|------------------------------|
| <b>National Chiao Tung University</b>   | Hsinchu, Taiwan | <i>Sep. 2016 - June 2019</i> |
| <ul style="list-style-type: none"><li>• M.S. in Communications Engineering (GPA: 4.02/4.3)</li></ul>                        |                 |                              |
| <b>National Taipei University</b>   | Taipei, Taiwan  | <i>Sep. 2012 - June 2016</i> |
| <ul style="list-style-type: none"><li>• B.S. in Communications Engineering (Rank: 1<sup>st</sup>, GPA: 3.72/4.0 )</li></ul> |                 |                              |

## HONORS AND AWARDS

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### Research

- **6<sup>th</sup> Place** (2017) - IJCNLP Shared Task 2 [3] - Taipei, Taiwan
- **1<sup>st</sup> 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

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|---|------------------------------|
| <b>National Chiao Tung University</b>                             | Hsinchu, Taiwan              |
| <i>Graduate Student/Research Assistant, Speech Processing Lab</i> | <i>Sep. 2016 - Jan. 2019</i> |
- 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

- "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

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- [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

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### IBM, Inc

Application Developer

Taipei, Taiwan

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

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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

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### 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 PyTorch and developed a rule-based dialog system to solve a conversation problem with 20 different domains
- Achieved 3<sup>rd</sup> place and won \$10,000 prize.

### The 5<sup>th</sup> 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 29<sup>th</sup> out of 70 teams at the ACM-ICPC Asia Jakarta Regional Contest

## TECHNICAL STRENGTHS

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