

# Yung-Sung Chuang

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## Research interests

**Natural language processing, machine and deep learning.** I would like to apply state-of-the-art NLP/DL technique to industry application.

## Education

### National Taiwan University(NTU)

Taipei, Taiwan

B.S. IN ELECTRICAL ENGINEERING(JUNIOR), GPA(UP TO NOW): **4.14/4.30**

Sep. 2016 - Jun. 2020 (EXPECTED)

- **Honors:** Dean's List (S '18), Irving T. Ho Memorial Scholarship (F '18)
- **Selected Courses:** Computer Programming 2016 Fall (**A+**), Data Structure and Programming 2017 Fall (**A+**), Machine Learning 2018 Spring (**A+**), Digital Speech Processing 2018 Fall (**A+**)

## Research Experiences

### NTU, Speech Processing & Machine Learning Lab, supervised by Prof. Hung-yi Lee

Taipei, Taiwan

#### UNDERGRADUATE RESEARCHER

Aug. 2018 - PRESENT

- Research on text style transfer with **CycleGAN architecture** to transfer spoken style language to formal style language. [[Github Link](#)]
- Research on learning unsupervised vector representations for unlabelled spoken speech signals, with the continuous spoken language model, pursuing **low-sourced spoken language understanding**.

### Academia Sinica, Intelligent Agent Systems Lab, supervised by Prof. Wen-Lian Hsu

Taipei, Taiwan

#### RESEARCH ASSISTANT AND RESEARCH INTERN (FOR THE FIRST 2 MONTH)

Jul. 2018 - PRESENT

- Build a supervised **accurate parsing system** with state-of-the-art deep learning methods such as BiLSTM and ELMo to find collocation pairs given natural language sentences. [[Github Link](#)]
- Build a fully-unsupervised system to finding collocation pairs in a large corpus with Word2Vec technique, **outperforming the previous research results** from five Ph.D. students of Prof. Hsu. [[Github Link](#)]

## Competitions & Awards

### NCTS Health Hackathon 2018

Taipei, Taiwan

**FIRST PRIZE** WITH NT\$120,000 (OUT OF 18 TEAMS) | [NEWS LINK](#) | [CERT. LINK](#)

Jun. 2018

- A hackathon on "Intelligent Hospital" organized by *National Center for Theoretical Sciences* and *Mount Sinai Health System, New York*.
- We proposed an improved **system for doctors shifting in hospital** — PRO (Patient Relay Optimizer) to help doctors grasp all info about patients, status, tasks at a glance, reducing the risk of information transfer incomplete between doctors when shifting. [[Github Link](#)]
- This work also won the **first prize** of **2018 H. Spectrum Demo Day** (out of 21 teams) | [News Link](#)

### MakeNTU 2018

Taipei, Taiwan

**BEST TECH AWARD** WITH NT\$50,000 & **MICROSOFT ENTERPRISE AWARD** (OUT OF 50 TEAMS) | [PHOTO LINK 1](#) | [LINK 2](#)

Mar. 2018

- A hackathon focus on the combination of hardware and software, organized by NTU
- We built an automatic machine for picking good coffee beans with deep learning technique, For better coffee quality and human time-saving.
- This work also placed in **top 8** in the finalist of **Microsoft Imagine Cup Taiwan National Final 2018**.

### HackNTU 2017

Taipei, Taiwan

**FIRST PRIZE** OF DEPARTMENT OF TRANSPORTATION WITH NT\$50,000 (OUT OF 100+ TEAMS) | [PHOTO LINK](#)

Jul. 2017

- The largest hackathon in Taiwan, organized by NTU.
- We built a **smart bus bell system** for solving the problems of getting on the right bus in the huge and busy city, improving the convenience of bus transportation.
- This work has also been **exhibited on WCIT2017 (World Congress on Information Technology)**, we made a presentation to visitors from all around the world.

## Skills

**Languages** C++, Python, MATLAB, Shell Scripting

**Libraries&Toolkits** Tensorflow, PyTorch, Keras

**Others** LaTeX, Git, Linux

## Projects

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### Pywordseg: State-of-the-art Chinese Word Segmentation Toolkit | [Github](#) | [PyPI Link](#)

COURSE FINAL PROJECT OF "DIGITAL SPEECH PROCESSING"

Jan. 2019

- An open source state-of-the-art Chinese word segmentation system with BiLSTM and ELMo, helping the downstream Chinese NLP task be more accurate.
- arXiv preprint: <https://arxiv.org/abs/1901.05816> "Robust Chinese Word Segmentation with Contextualized Word Representations".

### Chinese word auto-selection for ZhuYin sequence | [Github Link](#)

PERSONAL SIDE PROJECT

Jan. 2019

- A tiny program that can transfer ZhuYin (Bopomofo) sequence into Chinese word sequence with BiLSTM algorithm and ELMo contextualized ZhuYin vector representation.

### Multi-Turn Response Selection | [Report Link](#)

COURSE FINAL PROJECT OF "MACHINE LEARNING"

Jan. 2018

- Predicting next utterance of conversations in TV shows with deep learning approaches.

### Functionally Reduced And-Inverter Graph | [Github Link](#)

COURSE FINAL PROJECT OF "DATA STRUCTURE AND PROGRAMMING"

Jan. 2018

- Performing Boolean logic simulations and identify functionally equivalent candidate pairs in the circuit. Reducing the circuit size automatically.

### Input Method Auto-Modifier | [Github Link](#)

PERSONAL SIDE PROJECT

Aug. 2017

- A useful program that can modify your input type between Chinese and English automatically according to the words you type in.

### Emotion Recognition with OpenCV | [Github Link](#)

COURSE FINAL PROJECT OF "INTRODUCTION TO COMPUTER"

Jun. 2017

- A program that can identify emotions of human faces images with OpenCV.

### Big Two Game | [Github Link](#)

COURSE FINAL PROJECT OF "COMPUTER PROGRAMMING"

Jan. 2017

- Human-computer game of the big-two game.
- I designed the main algorithm of the machine agent, and the whole architecture of the game, while the other teammate designed the GUI interface.

## Activities

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DIRECTOR OF NTUEE PLUS DEPARTMENT, STUDENT ASSOCIATION OF NTUEE

Jun. 2018 - PRESENT

- Develop a **social media network**, which will link together alumni and undergrad students of NTUEE.
- Host interviews, talks, providing information about the latest technological developments from alumni.
- Pair alumni and undergrads to helping those aspiring to study abroad.