# Yung-Sung **Chuang**

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## Education

### National Taiwan University(NTU)

*Taipei, Taiwan*

B.S. in Electrical Engineering(Junior), GPA(up to now): **4.17/4.30** *Sep. 2016 - Jun. 2020 (EXPECTED)*

- **Honors:** Dean's List (S '18, S '19), 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+**), Deep Learning for Computer Vision 2019 Spring (**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 cross-modal representations for speech and text by CPC-maskLM pre-training, pursuing **low-source spoken language understanding**. **[Slide Link]**

### NTU, Machine Intelligence and Understanding Lab, supervised by Prof. Yun-Nung (Vivian) Chen

*Taipei, Taiwan*

**Undergraduate Researcher** *Feb. 2019 - PRESENT*

- Research on Generating Conclusions from Medical RCT Papers. This work is submitted to **LOUHI 2019 workshop on EMNLP**. **[Poster Link]**
- Won the 2nd place in **2019 NTU CSIE Undergrad Special Research Exhibition**, and **Appier 1st Prize**.

### 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 - Feb. 2019*

- 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*

**1st Place** 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 **1st place** 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*

**1st Place** 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

### Multi-Source Domain Adaptation Challenge | Poster Link

Course Final Project of "**Deep Learning for Computer Vision**" *Jan. 2019*

- Tried lots of experiments on unsupervised domain adaptation (UDA) for multi-source dataset from ICCV2019 Workshop Challenge.
- Proposed "Fuzzy Adversarial Discriminative Domain Adaptation" and implement "Maximum Classifier Discrepancy" to take this challenge.
- This work also won the **second place** in **2019 NTUEE Undergraduate Innovation Award** | Photo Link.

### 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.

### 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

**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.

**Guest Lecture** on Machine Learning 2019 Spring Course *Mar. 2019*

- Introduction to research papers on **Unsupervised Syntactic Parsing** topics.
- Youtube Link: https://www.youtube.com/watch?v=YIuBHB9Ejok

**Speaker** on MakeNTU 2019 workshop, Taipei 101 *Mar. 2019*

- Taught to about 100+ people to use Microsoft Azure, OpenCV and Raspberry Pi 3 to build a face recognition locking system.
- Slide Link: https://bit.ly/MakeNTU2019