

Yung-Sung Chuang

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Education

National Taiwan University(NTU)

Sep. 2016 - Jun. 2020

B.S. IN ELECTRICAL ENGINEERING

- **GPA:** overall: **4.18/4.30**, last 60: **4.27/4.30**, graduate ranking: **15/177 (8%)**
- **Honors:** Dean's List * 4 (S '18, S '19, F '19, S '20), Irving T. Ho Memorial Scholarship (F '18, F '19)
- **Selected Courses:** Data Structure and Programming 2017 Fall (**A+**), Algorithms 2019 Spring (**A+**), Machine Learning 2018 Spring (**A+**), Digital Speech Processing 2018 Fall (**A+**), Deep Learning for Computer Vision 2019 Spring (**A+**), Computer Architecture 2019 Fall (**A+**)

Research Experiences

Speech Processing Lab, NTU, Advisor: Prof. Hung-yi Lee & Lin-shan Lee

Aug. 2018 - PRESENT

UNDERGRADUATE RESEARCHER

- Researched on **Non-autoregressive Speech-to-Text Translation**.
- Researched on **Cross-Lingual Zero-shot Transfer** tasks. [[ArXiv Link](#)]
- Researched on **Language Model Pre-training** for speech and text to solve **Spoken Question Answering** tasks. [[Interspeech'20](#)]
 - Receive **Travel Grant** in Interspeech 2020 with this paper.
- Researched on **Text Style Transfer** with CycleGAN architecture [[Github Link](#)] and delete-insert-based Transformer. [[Github Link](#)]

Machine Intelligence and Understanding Lab, NTU, Advisor: Prof. Yun-Nung (Vivian) Chen

Feb. 2019 - PRESENT

UNDERGRADUATE RESEARCHER

- Researched on **Knowledge Distillation** to improve **Lifelong Learning** for language tasks. [[EMNLP'20](#)]
 - Won **Appier Best Application Award** in **2020 NTU CSIE Undergrad Special Research Exhibition**.
- Researched on **Cycle Consistency and Duality of NLU and NLG** to improve both NLU/NLG tasks. [[Findings@EMNLP'20](#)]
- Researched on Generating Conclusions from Medical RCT Papers. [[LOUHI 2019@EMNLP](#)]
 - Won the **2nd place** and **Appier 1st prize** in **2019 NTU CSIE Undergrad Special Research Exhibition**.

Intelligent Agent Systems Lab, Academia Sinica, Advisor: Prof. Wen-Lian Hsu

Jul. 2018 - Feb. 2019

RESEARCH INTERN AND RESEARCH ASSISTANT

- Built a supervised **accurate collocation parsing system** with state-of-the-art deep learning methods. [[Github Link](#)]
- Developed a fully-unsupervised methods to find collocation pairs in a large corpus with Word2Vec technique. [[Github Link](#)]

Publications & Preprints ^(† indicates equal contribution)

- [1] Cheng-I Lai, **Yung-Sung Chuang**, Hung-Yi Lee, Shang-Wen Li, James Glass. "Semi-Supervised Spoken Language Understanding via Self-Supervised Speech and Language Model Pretraining". *Submitted to ICASSP 2021*.
- [2] **Yung-Sung Chuang**, Shang-Yu Su, Yun-Nung Chen. "Lifelong Language Knowledge Distillation". *Accepted to EMNLP 2020*.
- [3] **Yung-Sung Chuang**[†], Shang-Yu Su[†], Yun-Nung Chen. "Dual Inference for Improving Language Understanding and Generation". *Accepted to Findings of EMNLP 2020*.
- [4] Chi-Liang Liu[†], Tsung-Yuan Hsu[†], **Yung-Sung Chuang**[†], Hung-yi Lee. "A Study of Cross-Lingual Ability and Language-specific Information in Multilingual BERT". *arXiv preprint arXiv:2004.09205*.
- [5] **Yung-Sung Chuang**, Chi-Liang Liu, Hung-Yi Lee, Lin-shan Lee. "SpeechBERT: An Audio-and-text Jointly Learned Language Model for End-to-end Spoken Question Answering". *Accepted to Interspeech 2020*.
- [6] Alexander Te-Wei Shieh[†], **Yung-Sung Chuang**[†], Shang-Yu Su, Yun-Nung Chen. "Towards Understanding of Medical Randomized Controlled Trials by Conclusion Generation". In *Proceedings of the 10th International Workshop on Health Text Mining and Information Analysis at EMNLP 2019*
- [7] **Yung-Sung Chuang**. "Robust Chinese Word Segmentation with Contextualized Word Representations". *arXiv preprint arXiv:1901.05816*

Teachings

Teaching Assistant on Deep Learning for Human Language Processing 2020 Spring Course

Mar. 2020 - Jun. 2020

- Designed and in charge of Homework 1 on **End-to-end Speech Recognition** topic. Slide Link: <https://bit.ly/dlhlhp-hw1>
- Introduced to **Non-Autoregressive Sequence Generation** topic on class.
- Youtube Video Link: <https://www.youtube.com/watch?v=jvyKmU4OM3c>

Selected Projects

Speech Recognition for Impaired Speaker [\[Github Link\]](#) [\[Report Link\]](#)

Jun. 2020

Course Final Project of "Introduction to Biomedical Engineering"

- Automatic Speech Recognition for Impaired Voice Speaker via Personalized Adaptation.
- Reducing the word error rate **from 80% to 20%** for patient voice (in Mandarin).
- Supporting online learning from user feedback.

DPP: Decentralized Publishing Platform [\[Github Link\]](#) [\[Poster Link\]](#)

Jun. 2020

Course Final Project of "Networking and Multimedia Lab"

- A Decentralized Publishing Platform created with Blockchain and Etheruem smart contract.

Multi-Source Domain Adaptation Challenge [\[Poster Link\]](#)

Jun. 2019

Course Final Project of "Deep Learning for Computer Vision"

- Experimented on unsupervised domain adaptation (UDA) for multi-source dataset from ICCV2019 Workshop Challenge.
- Won the **2nd place** in **2019 NTUEE Undergraduate Innovation Award**. [\[Photo Link\]](#)

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

Jan. 2019

Course Final Project of "Digital Speech Processing"

- Developed an open source **state-of-the-art** Chinese word segmentation system with BiLSTM and ELMo, helping the down-stream Chinese NLP task.

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

Jan. 2018

Course Final Project of "Data Structure and Programming"

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

Big Two Game Environment and Agent [\[Github Link\]](#)

Jan. 2017

Course Final Project of "Computer Programming"

- Developed a human-computer game program of the big-two game.
- Designed the main algorithm of the machine agent and the whole architecture of the game.

Honors & Awards

Dean's list (4 times), Electrical Engineering Dept. at NTU

Spring '18, Spring '19, Fall '19, Spring '20

Irving T. Ho Memorial Scholarship (2 times), EECS at NTU

Fall '18, Fall '19

Travel Grant, INTERSPEECH 2020 conference

Sep. 2020

Appier Best Application Award, 2020 NTU CSIE Undergrad Special Research Exhibition

Jun. 2020

2nd Place & Appier 1st Award, 2019 NTU CSIE Undergrad Special Research Exhibition

Jun. 2019

2nd Place, 2019 NTUEE Undergraduate Innovation Award

Jun. 2019

1st Place, 2018 H. Spectrum Demo Day (out of 21 teams)

Jul. 2018

1st Place, NCTS Health Hackathon 2018 (out of 18 teams)

Jun. 2018

Top 8 Finalist, Microsoft Imagine Cup Taiwan National Final 2018

Apr. 2018

Best Tech Award & Microsoft Enterprise Award, MakeNTU 2018 (out of 50 teams)

Mar. 2018

1st place of Dept. of Transportation, HackNTU 2017 (out of 100+ teams)

Jul. 2017

Activities

Director of NTUEE+ Department, Student Association of NTUEE

Jun. 2018 - Aug. 2019

Guest Lecturer, Machine Learning 2019 Spring Course [\[Youtube Link\]](#)

Mar. 2019

Speaker, MakeNTU 2019 workshop at Taipei 101 [\[Slide Link\]](#)

Mar. 2019

Skills

Languages C++, Python, MATLAB, Shell Scripting

Libraries&Toolkits Tensorflow, PyTorch, Keras, \LaTeX , Git, Linux