

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**, major: **4.22/4.30**, 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". *Proc. 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*

Teaching

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>

Honors & Awards

Dean's list (4 times) , Electrical Engineering Dept. at NTU	<i>Spring '18, Spring '19, Fall '19, Spring '20</i>
Irving T. Ho Memorial Scholarship (2 times) , EECS at NTU	<i>Fall '18, Fall '19</i>
Travel Grant , INTERSPEECH 2020 conference	<i>Sep. 2020</i>
Appier Best Application Award , 2020 NTU CSIE Undergrad Special Research Exhibition	<i>Jun. 2020</i>
2nd Place & Appier 1st Award , 2019 NTU CSIE Undergrad Special Research Exhibition	<i>Jun. 2019</i>
2nd Place , 2019 NTUEE Undergraduate Innovation Award	<i>Jun. 2019</i>
1st Place , 2018 H. Spectrum Demo Day (out of 21 teams)	<i>Jul. 2018</i>
1st Place , NCTS Health Hackathon 2018 (out of 18 teams)	<i>Jun. 2018</i>
Top 8 Finalist , Microsoft Imagine Cup Taiwan National Final 2018	<i>Apr. 2018</i>
Best Tech Award & Microsoft Enterprise Award , MakeNTU 2018 (out of 50 teams)	<i>Mar. 2018</i>
1st place of Dept. of Transportation , HackNTU 2017 (out of 100+ teams)	<i>Jul. 2017</i>

Selected Projects

Speech Recognition for Impaired Speaker [Github Link] [Report Link]	<i>Jun. 2020</i>
Course Final Project of "Introduction to Biomedical Engineering"	
<ul style="list-style-type: none">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]	<i>Jun. 2020</i>
Course Final Project of "Networking and Multimedia Lab"	
<ul style="list-style-type: none">A Decentralized Publishing Platform created with Blockchain and Ethereum smart contract.	
Multi-Source Domain Adaptation Challenge [Poster Link]	<i>Jun. 2019</i>
Course Final Project of "Deep Learning for Computer Vision"	
<ul style="list-style-type: none">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]	<i>Jan. 2019</i>
Course Final Project of "Digital Speech Processing"	
<ul style="list-style-type: none">Developed an open source state-of-the-art Chinese word segmentation system with BiLSTM and ELMo, helping the downstream Chinese NLP task.	
Functionally Reduced And-Inverter Graph [Github Link]	<i>Jan. 2018</i>
Course Final Project of "Data Structure and Programming"	
<ul style="list-style-type: none">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]	<i>Jan. 2017</i>
Course Final Project of "Computer Programming"	
<ul style="list-style-type: none">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.	

Activities

Director of NTUEE+ Department , Student Association of NTUEE	<i>Jun. 2018 - Aug. 2019</i>
Guest Lecturer , Machine Learning 2019 Spring Course [Youtube Link]	<i>Mar. 2019</i>
Speaker , MakeNTU 2019 workshop at Taipei 101 [Slide Link]	<i>Mar. 2019</i>

Skills

Languages	C++, Python, MATLAB, Shell Scripting
Libraries&Toolkits	Tensorflow, PyTorch, Keras, \LaTeX , Git, Linux