

Yung-Sung Chuang

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link to this file: bit.ly/yungsung

Education

National Taiwan University(NTU)

Sep. 2016 - Jun. 2020

B.S. IN ELECTRICAL ENGINEERING

- **GPA:** overall(up to now): **4.18/4.30**, last 60: **4.27/4.30**, ranking (in the first three years): **20/252**
- **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+**)
- **Teachings:** Teaching Assistant, Deep Learning for Human Language Processing (CommE5054), 2020 Spring, Prof. Hung-yi Lee

Research Experiences

Speech Processing & Machine Learning Lab, NTU, Advisor: Prof. Hung-yi 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](#)]
- 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.
 - 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.
- 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 ^(† indicates equal contribution)

- [1] A Study of Cross-Lingual Ability and Language-specific Information in Multilingual BERT. "Chi-Liang Liu[†], Tsung-Yuan Hsu[†], **Yung-Sung Chuang[†]**, Hung-yi Lee". Accepted to ACL 2020 Repl4NLP workshop.
- [2] **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. *arXiv preprint arXiv:1910.11559*
- [3] 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 (LOUHI 2019)*
- [4] **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/dlhlp-hw1>
- Introduced to **Non-Autoregressive Sequence Generation** topic on class.
- Youtube Video Link: <https://www.youtube.com/watch?v=jvyKmU4OM3c>

Skills

Languages C++, Python, MATLAB, Shell Scripting

Libraries&Toolkits Tensorflow, PyTorch, Keras, ~~MX~~ Git, Linux

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.

Competitions & Awards

NCTS Health Hackathon 2018

Jun. 2018

1st Place with NT\$120,000 (out of 18 teams) | [\[News link\]](#) | [\[Cert. Link\]](#)

- A hackathon on organized by *National Center for Theoretical Sciences* and *Mount Sinai Health System, New York*.
- 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 shifting incompletely. [\[Github Link\]](#)
- Won the **1st place** of **2018 H. Spectrum Demo Day** (out of 21 teams) | [\[News Link\]](#)

MakeNTU 2018

Mar. 2018

Best Tech Award with NT\$50,000 & **Microsoft Enterprise Award** (out of 50 teams) | [\[Photo Link 1\]](#) | [\[Link 2\]](#)

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

HackNTU 2017

Jul. 2017

1st Place of Department of Transportation with NT\$50,000 (out of 100+ teams) | [\[Photo Link\]](#)

- Built a **smart bus bell system** for solving the problems of getting on the right bus in the huge and busy city.
- Exhibited on **WCIT2017 (World Congress on Information Technology)**. Made a presentation to visitors from all over the world.

Activities

Director of NTUEE plus Department, Student Association of NTUEE

Jun. 2018 - Aug. 2019

- Developed a **social media network**, which will link together alumni and undergrad students of NTUEE.
- Hosted interviews, talks, providing information about the latest technological developments from alumni.

Guest Lecturer on Machine Learning 2019 Spring Course

Mar. 2019

- Introduced to research papers on **Unsupervised Syntactic Parsing** topics.
- Youtube Video Link: <https://www.youtube.com/watch?v=YluBHB9Ejok>

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>