Yung-Sung Chuang

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link to this file (latest): bit.ly/yungsung

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 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*

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

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=YIuBHB9Ejok

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*

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 Multinmedia 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 downstream 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.

Activities

Director of NTUEE+ Department, Student Association of NTUEE *Jun. 2018 - Aug. 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