Sung-Ping **Chang**

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Education

National Taiwan University (NTU) *Taipei, Taiwan*

B.S. in Computer Science and Information Engineering *Sept. 2016 - Jan. 2021*

- **GPA:** overall: 3.72/4.30, last 60: **4.13**/4.30
- **Selected Courses:** Machine Learning, Applied Deep Learning, Web Retrieval and Mining, Digital Speech Processing, Computer Vision, Data Science Programming, Scientific Computing, Human–Computer Interaction and Design

Research Experience

Machine Intelligence & Understanding Lab, Advisor: Prof. Yun-Nung (Vivian) Chen *National Taiwan University*

Undergraduate Researcher *Sept. 2018 - June 2020*

- Designed a **Dialogue Response Ranking** system based on BERT to predict response accurately. **[DSTC8@AAAI-20]**
- Implemented a **Customizable Dialogue System** architecture to support flexible training data formats and make replacing default encoder-decoder structure with the users' models easier.
- Researched **Transfer Learning for Data to Text Generation.** Transfer-learned a new model that takes basketball gameplay data and generates basketball articles from a previously learned model using baseball gameplay data.

Center for Artificial Intelligence & Robotics, Advisor: Prof. Zhao-Ming Gao *National Taiwan University*

Research Assistant *Feb. 2020 - Aug. 2020*

- Implemented a **Machine Translation** system for COVID-19 corpus based on Anymalign, BERT, and Word2vec.
- Designed an internal search engine and constructed COVID-19 corpus database using Elastic Search API.

Selected Projects

Graph Neural Networks(GNN) Implementation in Tensorflow [Github Link]

Tensorflow *July 2020 - Present*

- **Contributed to Neural Structure Learning, Tensorflow (700+ stars on Github)**
- Implemented three state-of-the-art GNN models: Graph Convolution, Graph Attention,Graph Isomorphism Network.
- Achieved same or better accuracy compared to the models' original research papers running on the Cora dataset.

Vocal Transcription for Pop Music [Github Link]

Course Final Project in **Scientific Computing** *May 2020 - June 2020*

- Attended AICup 2020 – Vocal Transcription Competition and won **8th place** (out of 421 teams).
- Extracted the audio MFCC features from the original file using Librosa.
- Implemented a sound event detection model based on LSTM to label the onset, offset, and pitch of the vocal.

Shopee Product Detection [Github Link]

Shopee Code League *July 2020*

- Reached 82.8% accuracy and achieved **4%** ranking out of 823 teams in Kaggle Competitions.
- Fine-Tuned pre-trained image classification models to detect real product on e-commercial platform.

Gossip Browser [Github Link]

Course Final Project in **Web Retrieval and Mining** *May 2020 - June 2020*

- Implemented a gossip news search engine using Vector Space Model (VSM).
- Constructed a news recommendation system by collecting search results from each user.

Smart Outfit [Website Link]

Course Project in **Human-Computer Interaction and Design** *March 2019 - June 2019*

- Designed a mobile app to recommend the best outfits for users.
- Built prototype and revised several times based on the group heuristic evaluation and user testing.

Publication

[1] **Sung-Ping Chang**, Yun-Nung Chen, Ting-Rui Chiang, Chao-Wei Huang. "Leveraging speaker profile and knowledge enrichment for end-to-end advising response ranking." *Accepted to The Eighth Dialog System Technology Challenge (DSTC8) workshop @ AAAI-20*

Work Experience

International Business Machines Corporation (IBM)
Taipei, Taiwan

AI Engineering Intern
July 2019 - Aug. 2019

- Improved the MobileNet-based model to 97% accuracy and contracted the model size through data augmentation, knowledge distillation, and ensemble methods.
- Built an end-to-end object detection model to help factories detect product defects.

Cathay Life Insurance
Taipei, Taiwan

Data Scientist Intern
July 2020 - Aug. 2020

- Worked on a fraud detection product. Constructed a Salesman-Client-Policy graph database and used the graph algorithm to find new relationships between graph nodes.
- Applied feature engineering techniques to original fraud detection model to increase accuracy.

Honors & Awards

AICup 2019 – Thesis Tagging Competition [Github Link]
Ministry of Education, Taiwan

1st Place + Trend Micro AI Elite Prize (out of 469 teams)
Dec. 2019

- Implemented a multi-label classification model to tag each sentence in the thesis abstracts into at least one category.
- Based on transformer-based model and raised accuracy by text pre-processing and different pooling methods.

2019 Cathay Big Data Competition
Cathay Life Insurance

1st Place (out of 244 teams)
Oct. 2019

- Focused on whether customers would buy specific insurance after three months.
- Completed binary classification tasks using Decision Tree-based models and feature engineering techniques.
- Designed a website interface, presented our proposed method, and explained how our method can be applied in the business situation at the final round of the competition.

AICup 2020 – Vocal Transcription Competition [Github Link]
Ministry of Education, Taiwan

8th Place (out of 421 teams)
July 2020

- Extracted the audio MFCC features from the original file using Librosa.
- Implemented a sound event detection model to label the onset, offset, and pitch of the vocal.

Special Topic Research Exhibition
National Taiwan University

Honorable Mention
June 2019

- Implemented a Customizable Dialogue System architecture to support flexible training data formats and make replacing default encoder-decoder structure with the users' models easier.

Extracurricular Activities

CSIE Men's Basketball Team
National Taiwan University

Vice director

- Led a basketball team of thirty players by establishing a team culture and cohesive team dynamics.
- Instructed players through drills and practices to improve the skill level of the team.

Faith Hope Love Club
Jianguo High School, Taipei

Vice president

- Accompanied elementary school students in the countryside and taught them Math and English every semester.
- Went to hospital to care for patients and chatted with them.

Skills

Programming Languages Python, C/C++, Python, R, HTML, CSS, Javascript, SQL, LaTeX
Toolkits/Frameworks Tensorflow, Keras, Pytorch, Git, Github, Deep Graph Library