Cheng-Fu **Yang**

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Education

National Taiwan University — *Taipei, Taiwan*

B.S. in Electrical Engineering — *September 2016 - Expected June 2020*

- **GPA:** Overall 4.02/4.3 (3.91/4.0) CS-Related: 4.27/4.3 (4.0/4.0)
- **CourseWork:** Machine Learning, Machine Learning and having it deep structured (Special Project), Deep Learning and Natural Language Processing (Special Project), Computer Vision, Data Structure, Algorithms, Computer Architecture, Probability and Statistics, Discrete Mathematics
- **Leadership:** NTU Soccer Representative Team

Research Experience

NTU IOX Center — *Taipei, Taiwan*

Undergraduate Researcher — *March 2019 - Present*

- **2nd author** of *Multimodal Conversational Helpbot To Support Robot Assembly Task*, submitted to **ICASSP 2020**.
- Incorporated visual feature into question answering model; improved **24%** in accuracy and **0.17** in **MRR** compared to text-only method.
- Presented a workflow able to generalize to other domains and be adopted to smart manufacturing field.

NTU Vision & Learning Lab — *Taipei, Taiwan*

Undergraduate Research Student — *September 2018 - Present*

- Designed a **UNET-GAN** with **Attention** Mechanism using **Pytorch** for unsupervised object recognition and achieved over **90%** in precision.
- Investigated, and proposed a generalized method, using **Graph Convolution Network** to capture the explicit and implicit relation in sentences for Text to Image Synthesis.
- Replaced pixel-wise loss with a novel **relation-aware** constraint to avoid overfitting on training data.
- Replaced Recurrent Network in Text to Image Synthesis with **multi-head attention** mechanism to generate image more comprehensively.

Working & Teaching Experience

ASUS Intelligent Cloud Services — *Taipei, Taiwan*

Software Engineer Intern — *July 2019 - August 2019*

- Implemented a novel **BFS** algorithm with **C++** and OpenCV for scanned document denoising and deskewing; increased the average precision of OCR by **2%**.
- Utilized **Graph Embedding** and Clustering Algorithms to analyze the relationship between employees' productivity and browsing behavior.
- Designed a Peer-Review Feedback System with **React** and **Python**; established an anonymous feedback mechanism in ASUSTek.

Machine Learning — *Taipei, Taiwan*

Teaching Assistant — *September 2019 - January 2020*

- Designed programming assignments which cover various domains in machine learning.
- Designed machine learning related handwriting problems, including math theory and induction of algorithms.
- Provided Hands-on teaching to students.

Projects

Mandarin Typing System for the Physically Impaired — *Taipei, Taiwan*

Biomedical Engineering final project [Python, Pytorch] — *December. 2018*

- Implemented a blink-detection method allowing physically impaired to select desire Mandarin Phonetic Symbol by blinking.
- Investigated rules for Mandarin Phonetic Symbol and created a friendly graphic user interface.

Automatic Fruit Quality Inspection — *Taipei, Taiwan*

Finalist at Agriculture Hackathon 2018 [Python, Pytorch] — *November. 2018*

- Investigated and implemented a deep convolution network to classify the quality of passion fruits.
- Developed a Chatbot using Python Line bot SDK, allowing users to inquire the price of fruits according to their quality.

NTU Course Context-aware Search Engine — *Taipei, Taiwan*

Outstanding Project at Digital Speech Processing Final Project [BeautifulSoup, Pytorch] — *June. 2019*

- Developed a context-aware search engine with **BERT** to find semantic related results instead of matching word by word.
- Implemented a **PRF** algorithm to optimize searching results.

Honors & Awards

2017 **Publish *GEN High School Campus Life*,** A comic book about my high school life — *Tainan, Taiwan*

2016, 2019 **Presidential Award,** Awarded to students with academic performance in the top 5% of their class — *Taipei, Taiwan*

2018 **First Prize, NTD 10,000,** Institute for Information Industry Enterprise Award at Meichu hackathon 2018 — *Hsinchu, Taiwan*

Skills

Languages (proficient): C++, Python, Linux, Git (familiar): Java, JavaScript, C, Matlab, Verilog, MIPS, HTML/CSS