Chin-Lun (Allen) Fu

chinlun1999@gmail.com | allen0307 | chin-lun-fu | chin-lun-fu

EDUCATION

National Taiwan University (NTU)
Taipei, Taiwan

B.S. in **Electrical Engineering** *Sept. 2017 - Jun. 2022*

- **Overall GPA**: 3.81/4.30, **Last 2-year GPA**: 4.15/4.30
- CS Relevant Coursework: Deep Learning for Computer Vision*, Applied Deep Learning*, Numerical Linear Algebra*, Machine Learning, Operating Systems, Computer Architecture, Algorithms, Data Structure and Programming, Probability and Statics, Computer Programming (* indicates graduate-level courses)

PUBLICATIONS

* indicates equal contribution

[1] **Chin-Lun Fu***, Zih-Ching Chen*, Yun-Ru Lee, and Hung-yi Lee. "AdapterBias: Parameter-efficient Token-dependent Representation Shift for Adapters in NLP Tasks," Findings of the Association for Computational Linguistics: **NAACL 2022**. [paper] [arxiv] [code]

[2] **Chin-Lun Fu***, Zih-Ching Chen*, Chih-Ying Liu, Shang-Wen Li, and Hung-yi Lee. "Exploring Efficient-tuning Methods in Self-supervised Speech Models," The 2022 IEEE Spoken Language Technology Workshop: **SLT 2022**. [arxiv]

[3] **Chin-Lun Fu***, Zih-Ching Chen*, Lin-Hsi Tsao*, Shang-Fu Chen, and Yu-Chiang (Frank) Wang. "Learning Facial Liveness Representation for Domain Generalized Face Anti-Spoofing," IEEE International Conference on Multimedia and Expo: **ICME 2022**. [paper] [arxiv]

WORK EXPERIENCE

Microsoft
Taipei, Taiwan

Research Intern, Visual Document Intelligence Team *Apr. 2022 - Nov. 2022*

- Proposed FactorTransformer to improve the quality of cross-lingual transfer learning, especially in low-resource.
- Generalized the existing transformer modules with masked factor loss to streamline the operation of tasks.

Intel Corporation
Taipei, Taiwan

Hardware Verification Intern, Silicon Module Validation Team *Jan. 2021 - Aug. 2021*

- Developed the Transmission and Reception testing flows.
- Optimized the wireless modules by applying TIBCO Spotfire & Log Manager.

High Tech Computer Corporation (HTC)
Taipei, Taiwan

Research Intern, Algorithms and Machine Learning Team *Jul. 2020 - Nov. 2020*

- Obtained 55% in F1 score for clarifying questions in the ClairQ competition.
- Improved 7% accuracy rate with 27% less time by applying Orthogonal Initialization in Deep Linear Network.

RESEARCH EXPERIENCE

NTU, Speech Processing and Machine Learning Lab
Taipei, Taiwan

Research Assistant | Advisor: Prof. Hung-yi Lee *Oct. 2020 — Present*

- Researched on Parameter-Efficient Learning in NLP and Speech (e.g., Adapter and Prompt).
- Used 99.95% less training parameters with at most 0.5% accuracy drop on GLUE benchmark.

Johns Hopkins University (JHU), JSALT 2022 [website]
Baltimore, Maryland (remote)

Team member | Advisor: Prof. Hung-yi Lee, Shang-wen (Daniel) Li *Jun. 2022 - Aug. 2022*

- Applied various parameter-efficient tuning methods in NLP to SUPERB benchmark.
- Achieved over 90% trainable parameters reduction with comparable performance on SUPERB benchmark.

NTU, Vision and Learning Lab
Taipei, Taiwan

Research Assistant | Advisor: Prof. Yu-Chiang Frank Wang *Jan. 2021 - Dec. 2021*

- Researched domain generalization problems of Face Anti-Spoofing and proposed a state-of-the-art (SOTA) model.
- Improved the Area under the ROC Curve (AUC) from 82.11% to 85.49% under the novel spoof attack detection.

AWARDS

2021 **1st Place** out of 20+ teams in the Face Anti-Spoofing Competition. [Microsoft]
2021 **2nd Place** out of 100+ students, Undergraduate Innovation Award. [NTU EE]
2021 **3rd Place** out of 100+ students, Undergraduate Innovation Award. [NTU EE]
2021 **Top 10** team out of 100+ Taiwanese teams, Rethink Taiwan 2027. [Youth Development Administration]
2021 **President Award** out of 50+ teams, AICUP Medical Competition. [Ministry of Education]

SELECTED COURSE PROJECTS

Transition from Open Domain to Task Related Task [report]

- Designed BlenderBot, a conversational bot, to interact with the user to transition an open-domain dialogue to a specific topic.
- Achieved 87.3% accuracy hit rate during the conversation between bot and user.

MedBERT: Medical decision making and dialogue analysis [report]

- Achieved 83.4% accuracy rate in medical decision-making via MedBERT.
- Won **President Award** in the AICUP Medical Competition.

FRANK: FeatuRe Anti-spoofing NetworK [code]

- Achieved 99.85% AUC score on Oulu database, 98.79% AUC score and 79.24% accuracy on Siw database by combining Domain Seperation Network (DSN) with the concept of feature disentanglement.
- Won **1st Place** in the Microsoft-sponsored competition.

Orthogonal Initialization in Deep Linear Network [slide] [code]

- Improved vanilla Deep Linear Network by 6.7% accuracy with Orthogonal Initialization in image classification.

Picture defogging with FPGA [slide]

- Defogged pictures on FPGA based on the concept of Dark Channel.
- Achieved 5x speed-up compared with Python toolkits.

LEADERSHIP

Rethink Taiwan 2027/Youth Development Administration

Taiwan

CORE MEMBER

Dec. 2020 — Mar. 2021

- Made a concerted effort to resolve the problems of **Sexual Image Overflowing.**
- Designed a prototype game based on Google Form and attracted 500+ users. [game]
- Raised awareness of internet ethics and gender equality with over 80% of test subjects indicating they would not watch or share nonconsensual nudes in any form.
- Won the **Top 10 Award** in the national contest; Invited to propose project results to Taiwan's Executive Yuan.

NTU Social Service Club

Taipei, Taiwan

CHIEF COORDINATOR

Sept. 2017 — Sept. 2019

- Organized the details of the camp, including venue and negotiation with the school's top management.
- Provided 10+ educational courses to 50+ elemantary children.

SKILLS

Programming Python, C/C++, HTML/CSS, MATLAB
Libraries & Toolkits PyTorch, TensorFlow, Keras, Git, Linux, LaTeX, OpenCV, Scikit-learn, Cuda