George **Fu-Cheng Pan**

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Education

Carnegie Mellon University (CMU) — *Pittsburgh, PA*

Master of Science in ECE/ETIM Dual Masters Degrees program — *Jan. 2024 - Present*

National Taiwan University (NTU) — *Taipei, Taiwan*

Bachelor of Science in Physics, Minor in Electrical Engineering — *Sep. 2019 - Jun. 2023*

- **GPA: 4.0/4.3**
- Teaching Assistant for "Deep Learning for Computer Vision (2022 Fall)" - Instructor: Prof. Yu-Chiang Frank Wang
- Relevant Courses: Computer Programming (A-), Data Science* (A-), Probability and Statistics (A-), Machine Learning* (A+), Deep Learning for Computer Vision* (A+), Signals and Systems (A), Algorithms (A), Computer Programming Laboratory (A+), Introduction to Computational Physics (1) (A-), Introduction to Computational Physics (2) (A+), Introduction to Digital Speech Processing* (A), Computer Vision* (A+) (* indicates graduate courses).

Research Experience

Semantic-aware Gamma Correction for Unsupervised Low-light Image Enhancement — *Taipei, Taiwan*

Undergraduate Researcher at Vision and Learning Lab, NTU, Prof. Yu-Chiang Frank Wang [Paper Link] — *Feb. 2022 - Jun. 2023*

- **Collaborated with the ISP team in Novatek Microelectronics Corp.**
- Improved image quality and generalization capability with our semantic-aware enhancement models.
- Relieved the paired-data requirement for training with unsupervised learning approaches.
- **Co-author paper accepted by 2023 IEEE International Conference on Acoustics, Speech and Signal Processing.**

Self-Supervised Image Denoising via Realistic Noise Generation — *Taipei, Taiwan*

Undergraduate Researcher at Vision and Learning Lab, NTU, Prof. Yu-Chiang Frank Wang [Paper Link] — *Feb. 2022 - Jun. 2023*

- Improved image quality and generalization capability with our self-supervised model.
- Improved robustness via generating pseudo noisy-denoised image pairs as additional training supervision.

Fast Machine Learning Project — *Taipei, Taiwan*

Undergraduate Researcher, led by Prof. Kai-Feng Chen and Prof. Shih-Chieh Hsu — *June. 2021 - Nov. 2021*

- **Cooperated with CERN to apply machine learning techniques at the Large Hadron Collider (LHC).**
- Successfully tested the usage of Sonic Triton Server and evaluated the efficiency of deep learning model "InceptionV1" on the server.
- Successfully ran MiniAOD with GPU and analysis workflows.

Selected Projects

Ganzin Pupil Tracking, Final project of Computer Vision (2023 Spring) — *Taipei, Taiwan*

Team member [Presentation Link] — *Jun. 2023*

- Incorporated traditional computer vision techniques with machine learning to achieve pupil segmentation.
- Won the 4th place in segmentation accuracy.

Skull Fracture Detection, Final project of Deep Learning for Computer Vision (2021 Fall) — *Taipei, Taiwan*

Team member [Paper Link] — *Jan. 2022*

- Sponsored by Deep01.
- Achieved the best detection results on computed tomography (CT) images by utilizing pre-trained YOLOv4 with several well-designed data pre-processing and post-processing methods, beating over 10+ teams.

Spam Email Classification, Final project of Data Science (2021 Spring) — *Taipei, Taiwan*

Team member [Paper Link] — *Dec. 2021*

- Implemented mutual information score from scratch for data pre-processing.
- Tested K-Nearest Neighbors (KNN) algorithm from scratch on the task with different distance metrics.

Skills

Programming Languages	Python, C++, Matlab
Libraries/Toolkits	Pytorch, Pandas, Numpy, TensorFlow, OpenCV
English Proficiency	TOEFL iBT 108
Specialization	Machine Learning, Artificial Intelligence, Computer Vision