

Ernie Chu

PhD Student

Department of Computer Science, Johns Hopkins University

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Education

Johns Hopkins University

PhD in Computer Science

- Advised by Dr. Vishal M. Patel

Baltimore, MD

Sept. 2024 - PRESENT

National Sun Yat-sen University (NSYSU)

B.S. in Computer Science and Engineering

- GPA 4.15/4.3
- Dean's list awards
- NSTC Research Grant for University Students

Kaohsiung, Taiwan

Sept. 2018 - June 2022

Experience

Academia Sinica

Research Assistant. Advisor: Jun-Cheng Chen

- Video generations using image Diffusion Models
- Generalizable facial video forgery (Deepfake) detection
- Adversarial attacks, generative models, multi-modal reasoning

Taipei, Taiwan

Sept. 2022 - Aug. 2024

Office of International Affairs, NSYSU

Full-Stack Web Developer (Part-Time)

- New online system from scratch for the exchange program
- Maintain all websites under the office
- HTML/JS/CSS, PHP, Vue.js, Express.js, Sequelize.js, MariaDB, MongoDB

Kaohsiung, Taiwan

Sept. 2018 - June 2022

Publications & Preprints

- [1] Shuo-Yen Lin, **Ernie Chu**, Po-Hung Yeh, Jun-Cheng Chen, Jia-Ching Wang, **Diffusion to Confusion: Naturalistic Adversarial Patch Generation Based on Diffusion Model for Object Detector**. *ICIP*, 2025. 
- [2] ChunYen Shih, Li-Xuan Peng, Jia-Wei Liao, **Ernie Chu**, Cheng-Fu Chou, Jun-Cheng Chen, **Pixel Is Not A Barrier: An Effective Evasion Attack for Pixel-Domain Diffusion Models**. *AAAI*, 2025. 
- [3] Tai-Ming Huang, Yue-Hua Han, **Ernie Chu**, Shu-Tzu Lo, Kai-Lung Hua, and Jun-Cheng Chen, **Generalized Image-based Deepfake Detection through Foundation Model Adaptation**. *ICPR*, 2024. 
- [4] **Ernie Chu**, Tzuhsuan Huang, Shuo-Yen Lin, and Jun-Cheng Chen, **MeDM: Mediating Image Diffusion Models for Video-to-Video Translation with Temporal Correspondence Guidance**. *AAAI*, 2024. 
- [5] Po-Han Huang, Yue-Hua Han, **Ernie Chu**, Jun-Cheng Chen, and Kai-Lung Hua, **Multi-Task Self-Blended Images for Face Forgery Detection**. *ACM Multimedia Asia*, 2023. 

Professional Services

- | | | |
|------|---|------------------|
| 2024 | Reviewer , The Thirteenth International Conference on Learning Representations (ICLR 2025) | Singapore |
| 2023 | Reviewer , The Twelfth International Conference on Learning Representations (ICLR 2024) | Vienna, Austria |
| 2023 | Reviewer , 18th International Conference on Machine Vision Applications (MVA 2023) | Hamamatsu, Japan |

Honors

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| 2022 | Honorary Member , The Phi Tau Phi Scholastic Honor Society of the Republic of China | Taiwan |
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Projects

Interactive transcriptor for 2024 Taiwan presidential campaigns

Leading Developer

- An interactive transcriptor referencing to the source videos of 2024 Taiwan (ROC) presidential campaigns in campus
- Helping students digest 1-hour presentation in 10 minutes, reinforcing the democratic resilience in campus



Kaohsiung, Taiwan

Oct. 2023 - Nov. 2023

LoLViZ.

Leading Developer

- A 3-stage League of Legends visualizer

Kaohsiung, Taiwan

May 2022 - June 2022

- Vue.js, D3.js, Firebase



NSYSU Captcha Solver

Leading Developer

- CNN for auto filling the captcha verification
- TensorFlow.js, Chrome extension

Kaohsiung, Taiwan

Jan. 2021 - Feb. 2021



Secure On-line Chatting Service

Leading Developer

- On-line chatting service with console-based UI using ncurses
- Socket programming, multi-threading C++17, attribute-based encryption

Kaohsiung, Taiwan

Spring 2021



License Plate Verification System

Leading Developer

- ML-based object detector to track and verify the scooter license plate, deployed on Nvidia Jetson Nano

Kaohsiung, Taiwan

Fall 2020

