

Ming-Yang Ho

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EDUCATION

- M.S. in Bioinformatics** Sep. 2019 – Sep. 2021
National Taiwan University (GPA: 4.20/4.30) *Taipei, Taiwan*
- Research topic: 2D/3D Computer Vision, Multimodal Deep Learning, Digital Health, Cyber Security
 - Thesis advisor: Prof. Yufeng Jane Tseng
- Pharm.D. in Pharmacy** Sep. 2014 – Jun. 2019
National Cheng Kung University (GPA: 4.06/4.30) *Tainan, Taiwan*

RESEARCH EXPERIENCE

- Journal Reviewer** Feb. 2023 - Present
IEEE Transactions on Medical Imaging (Impact Factor: 10.6)
- Research Assistant** Feb. 2023 – Present
Department of Computer Science and Information Engineering, National Taiwan University *Taipei, Taiwan*
- Invented Dense Normalization for unpaired image-to-image translation at arbitrary resolutions
 - Designed a semi-supervised turning time segmentation algorithm incorporating 3D human pose estimation
 - Explored inpainting and semi-supervised learning techniques for applications in gait analysis
- Conference Reviewer** Nov. 2022 - Present
IEEE/CVF Conference on Computer Vision & Pattern Recognition (CVPR) 2023 & 2024
- Research Assistant** Sep. 2019 – Sep. 2021
Department of Computer Science and Information Engineering, National Taiwan University *Taipei, Taiwan*
- Formulated a multimodal (2D/3D vision & speech) deep learning algorithm for Parkinson's disease diagnosis
 - Investigated the temporal consistency in video-based 3D human pose estimation
 - Created a web service and 3D visualizer for protein binding structure prediction
 - Employed computational strategies in the development of a COVID-19 vaccine
- Summer Research Intern** Jun. 2019 - Sep. 2019
Institute of Information Science, Academia Sinica *Taipei, Taiwan*
- Employed the RGB concept to craft a deep learning-based mutation prediction algorithm

WORK EXPERIENCE

- Senior Machine Learning Engineer** Oct. 2021 – Present
aetherAI *Taipei, Taiwan*
- Initiated and led a research team to invent Kernelized Instance Normalization (published in *ECCV 2022*) ([Link](#))
 - Directed a research team to demystify the challenges of semi-supervised object detection in pathological images
 - Developed and maintained full-stack infrastructure for machine learning workflows
 - Invented a linear-time Non-Maximum Suppression algorithm, achieving over 1,000-fold reduction in computational time for nuclei detection
 - Reduced manual effort by over 400% through the implementation of a distributed annotation and inference system
 - Explored and developed Python package encryption strategies
 - Optimized and accelerated instance segmentation and object detection algorithms
- Data Engineer Intern** Jul. 2020 – Dec. 2020
Dcard *Taipei, Taiwan*
- Designed and integrated an automatic image cropping system using deep learning
 - Conceived an efficient algorithm with contrastive learning to identify cyber warriors among 1,000,000+ users
- Clinical Pharmacist Intern** Sep. 2018 - Jun. 2019
National Cheng Kung University Hospital *Tainan, Taiwan*
- Developed an Android application, "Vancalc", for vancomycin dosage estimation ([Google Play](#))
 - Provided patient care in specialized departments including psychiatry, cardiology, nephrology, and the intensive care unit

PUBLICATIONS

- [1] **Ho, M. Y.**, Kuo, M. C., Chen, C. S., Wu, R. M., Chuang, C. C., Shih, C. S., & Tseng, Y. J. (2023) Pathological Gait Analysis with an Open-Source Cloud-Enabled Platform Empowered by Semi-Supervised Learning – PathoOpenGait. (accepted by the *IEEE Journal of Biomedical and Health Informatics* on Dec. 4, 2023)
- [2] **Ho, M. Y.***, Wu, M. S., & Wu, C. M. (2022). Ultra-high-resolution unpaired stain transformation via Kernelized Instance Normalization. In *European Conference on Computer Vision (ECCV)* (pp. 490-505). Cham: Springer Nature Switzerland. (* corresponding author)
- [3] Huang, Y. W., Lin, O. A., Su, B. H., Hsieh, P. H., **Ho, M. Y.**, Kuo, T. C., & Tseng, Y. J. (2022). Taiwan Controlled Substances Database. *Journal of the Formosan Medical Association*, 121(12), 2649-2652.
- [4] Liu, L. C.[†], **Ho, M. Y.**[†], Su, B. H., Wang, S. Y., Hsu, M. T., & Tseng, Y. J. (2021). PanGPCR: predictions for multiple targets, repurposing and side effects. *Bioinformatics*, 37(8), 1184-1186. ([†] equal contribution)
- [5] **Ho, M. Y.***, Tsai, Y. S., Wang, J. J., & Wang, T. W. (2020). Potential Security and Privacy Issues in Novel Taiwanese National Electronic Identification system. *Taiwan Academic Network (TANET)* (pp. 1264-1269). (* corresponding author)
- [6] **Ho, M. Y.**, Wu, M. S., Wu, C. M., & Tseng, Y. J. (2023). Every Pixel Has its Moments: Seamless Ultra-High-Resolution Unpaired Image-to-Image Translation via Dense Normalization. (under review at *CVPR* 2024)
- [7] Yang, Y. Y., **Ho, M. Y.**, Tai, C. H., Wu, R. M., Kuo, M. C., & Tseng, Y. J. (2023) FastEval Parkinsonism: An instant deep learning-assisted video-based online system to automatically evaluate parkinsonian motor symptom using finger tapping. (under review for a major revision at *npj Digital Medicine*)

TEACHING EXPERIENCE

- Undergraduate Research Mentor** Jun. 2023 - Present
Department of Computer Science and Information Engineering, National Taiwan University Taipei, Taiwan
- Guided two undergraduates from UCLA and CU in research on inpainting and semi-supervised learning
- Invited Lecturer** Spring 2023
School of Pharmacy, National Cheng Kung University Tainan, Taiwan
- Course: Applications in Smart Medication using AI Image Recognition (Instructor: Prof. Ching-Lan Cheng)
 - Topic: Security, Privacy, and Robustness in Machine Learning and Deep Learning Models
- Teaching Assistant** Spring 2023
Department of Computer Science and Information Engineering, National Taiwan University Taipei, Taiwan
- Course: A Practical Guide to Drug Development in Academia: The SPARK Approach (Instructor: Prof. Yufeng Jane Tseng)
 - Designed a real-time investment website to foster interaction among students ([GitHub](#))
- Invited Lecturer** Spring 2022
Department of Biomedical Engineering, National Taiwan University Taipei, Taiwan
- Course: Application of Deep Learning in Medical Imaging (Instructor: Dr. Chao-Yuan Yeh)
 - Topic: An Introduction to Deep Learning and Computer Vision
- Teaching Assistant** Spring 2021
Department of Electrical Engineering, National Taiwan University Taipei, Taiwan
- Course: Machine Learning (Instructor: Prof. Hung-yi Lee)
 - Led and collaborated on using speech-to-text and text-to-speech techniques to translate a Mandarin course into English
- Teaching Assistant** Spring 2021
Department of Electrical Engineering, National Taiwan University Taipei, Taiwan
- Course: Web Programming (Instructor: Prof. Chung-Yang Huang)
 - Organized a hackathon centered around developing the 2048 game using ReactJS ([GitHub](#))
- Teaching Assistant** Fall 2020
Department of Computer Science and Information Engineering, National Taiwan University Taipei, Taiwan
- Course: Bioinformatics and Cheminformatics Microcourse (Instructor: Prof. Yufeng Jane Tseng)
 - Conducted lectures on Python programming and lab sessions

VOLUNTEERING

Programming Workshop Leader <i>National Taiwan University</i> <ul style="list-style-type: none">Conducted a workshop, imparting industrial-level programming and development skills to students (YouTube)	Apr. 2023 - Oct. 2023 <i>Taipei, Taiwan</i>
Open Source Contributor <i>Scikit-Learn</i> <ul style="list-style-type: none">Enhanced the documentation of the Scikit-Learn library (#22924)	Mar. 2022 - Apr. 2022
Open Source Contributor <i>MMSelfSup, OpenMMLab</i> <ul style="list-style-type: none">Fixed critical bugs and added comprehensive tests (#180 and #182)	Jan. 2022 - Feb. 2022
Conference Organizer <i>Machine Learning Summer Schools (MLSS) 2021</i>	Apr. 2021 - Aug. 2021 <i>Taipei, Taiwan</i>
Regulatory Compliance Monitor <i>Public Health Bureau of HsinChu County Government</i>	Jan. 2018 - Mar. 2018 <i>Hsinchu, Taiwan</i>

AWARDS

Best Master Thesis Award <i>National Taiwan University</i> <ul style="list-style-type: none">Topic: Look, Listen, and Diagnose: A Deep Learning-Based Comprehensive Parkinson's Disease Evaluation System with a 3D Point Cloud and Acoustic Features	Apr. 2022 <i>Taipei, Taiwan</i>
Outstanding Graduate Award <i>National Cheng Kung University</i>	Jun. 2019 <i>Tainan, Taiwan</i>

LEADERSHIP

Chief of the Design Department <i>Pharmaceutical Students' Association of Taiwan</i> <ul style="list-style-type: none">Initiated and conducted free courses on Adobe software for membersLed a team to design posters, promoting medical and health-related issues	Sep. 2017 – Jun. 2019 <i>Taiwan</i>
Chief of the Design Department <i>International Pharmaceutical Students Federation Conference</i> <ul style="list-style-type: none">Directed a team in designing the key vision, posters, booklets, and souvenirs for the conference	Jun. 2017 – Sep. 2017 <i>Taipei, Taiwan</i>
Chief of the Design Department <i>National Cheng Kung University Student Union</i> <ul style="list-style-type: none">Led a team in designing posters and slides for students and the school, while providing guidance on Adobe software usage	Sep. 2016 – Jun. 2017 <i>Tainan, Taiwan</i>
Chief of the Academic Department <i>Pharmacy Student Association, National Cheng Kung University</i> <ul style="list-style-type: none">Organized and executed academic events for students	Sep. 2015 – Jun. 2017 <i>Tainan, Taiwan</i>

OPEN SOURCE PROJECTS

PathoOpenGait: Pathological Gait Analysis with an Open-Source Cloud Platform <ul style="list-style-type: none">Engineered a scalable, full-stack web service with a microservice architecture (GitHub) (Deployment)	Jun. 2023 - Present
SUPERB: Speech processing Universal PEREformance Benchmark system <ul style="list-style-type: none">Led the development and implementation of the back end of this web service (GitHub) (Deployment)	Jun. 2021 - Oct. 2021

TECHNICAL SKILLS

Languages (Human): Mandarin (Native), English (Advanced), Japanese (Advanced), French (Intermediate)
Programming Languages: C/C++, Python, JavaScript, Rust, Verilog
Frameworks: PyTorch, ReactJS, Flask, FastAPI, Celery
Developer Tools: Docker, Docker Compose, MySQL, Redis, Git, Linux
Applications: Full-Stack Development, Microservices Architecture Design, Distributed System Design, Cyber Security