

Chad(Hao-Chun), Yang

PHD GRADUATE · MACHINE LEARNING RESEARCH SCIENTIST

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Education

NTHU(National Tsing Hua University)

Ph.D. in Electrical Engineering

- Got President Scholarship which is given to promising students in EE Dept.

Hsinchu, Taiwan
Sep.2016 - May.2022

NTHU(National Tsing Hua University)

B.S. in Electrical Engineering

Hsinchu, Taiwan
Sep.2012 - July.2016

Research Projects

Affective Physiological Responses under Multimedia Stimuli

Doctoral Researcher

- Improve physiological emotion recognition by 3.5% UAR using Transformer-based Personalized modeling.
- Improve physiological personality recognition by 8% UAR through Multi-Head Attention Graph Convolutional Network (GCN).
- Study scientific evidence on subjective/intended emotion reactions on ECG/EDA/EEG signals with Shapley analysis.

Taiwan
Sep.2018 - May.2022

Study of The Alzheimer using Brain Imaging

Research Scientist Cooperated with <National Health Research Institutes>

- Propose a Privacy-aware learning *FedCM* improving heterogeneity Federated Learning for Multi-Source Alzheimer's Detection.
- Implemented MRI research pipeline: Data-Preprocessing (FreeSurfer, SPM), Modeling (3D CNN), and Explainable AI tools.
- Brought neuroscientific insights into the brain's functional connectivity and the mechanism of face processing and memory.

Taiwan
Sep.2016 - May.2022

Cardiovascular Disease Detection

Research Scientist Cooperated with <Inventec AI Center>

- Propose a Mixed-Domain Self-Attention Resnet (MDARsn) using Reduced-Lead ECG for Heart Disease Detection.
- Winner of the Best Challenge Poster in PhysioNet/CinC Challenge 2021.

Taiwan
Jan.2021 - Dec.2021

Work Experience

The Podcast Host

Audio Developer, Freelancer

- Apply synthetic data augmentation for speech/music segmentation with Convolutional Recurrent Network (CRNN) to 83.5% F1.
- Develop a hybrid Noise Reduction and Speech Leveling system with RNN and noise profiling.
- Collaboration with Customer Engineer conducting user satisfaction study on speech enhancement system.

United Kingdom (Remote)
July.2021 - May.2022

C-Media Electronics, Inc.

Senior Machine Learning Engineer

- Lead development of real-time deep CRNN Speech de-reverberation engine with SRMR 4.774.
- Lead development of speech cloning from unseen sources using Generative Adversarial Network (GAN).

Taipei, Taiwan
Jan.2020 - Dec.2021

Institute for Information Industry (III)

Senior Machine Learning Engineer

- Lead the development of deep video retrieval system speeding up the fake news screening using Pytorch and Ranking algorithm.
- Build the system with Flask and Docker with Retrieval Precision 95.1%.
- The system would be deployed by two NGO fake news checkers [Taiwan FactCheck Center](#) and [MyGoPen](#).

Taipei, Taiwan
March.2020 - Nov.2020

beBit, Inc.

Machine Learning Engineer

- Shopping conversion prediction based on user website traversal graph.
- Customer pattern recognition for automatically clustering user groups for precise marketing.

Tokyo, Japan
Jan.2018 - Jan.2019

Gamania Digital Entertainment Co., Ltd.

Machine Learning Engineer

- Develop deep Speech/Face/Gesture Multi-modal behavior profiling system for AI hiring recommendation.
- Construct a Multi-person Multi-modal real-time data collection system.

Taipei, Taiwan
Sep.2016 - Sep.2018

Skills

Programming | DevOps Python, Matlab, Bash | AWS, GCP, Linux, Git, Docker

Deep Learning | MLOps Pytorch, Tensorflow, Keras | MLflow, W&B

Data Science Sklearn, Numpy, Pandas, Matplotlib, SHAP

Languages English, Chinese

Honors & Awards

INTERNATIONAL

- 2021 **Best Challenge Poster**, PhysioNet/CinC Challenge *Computing in Cardiology Society*
- 2019 **Travel Grants**, 2019 ICASSP SPS Travel Grants *IEEE Signal Processing Society*
- 2015 **Scholarship**, Summer Academic Exchange Program *Fudan University, China*

DOMESTIC

- 2018 **Scholarship**, Paper Presentation Scholarship *ACLCLP, Taiwan*
- 2018 **Scholarship**, AI Scholarship *Adbertech Inc., Taiwan*
- 2018 **Scholarship**, President Scholarship *National Tsing Hua University*
- 2017 **2nd Place**, Winner of The Second TSC Marketing Symposium *TOPCO SCIENTIFIC CO., LTD*

PROGRAM COMMITTEES

- 2022 **Member**, IEEE ICKII, IEEE ICEIB, IARIA CENTRIC
- 2021 **Member**, IARIA CENTRIC

Teaching

National Tsing Hua University

Teaching Assistant

- 10720IMS503100: Artificial Intelligence and Entrepreneurship
- 10710EE366200: Digital Signal Processing Laboratory
- 10620EE306001: Probability
- 10610EE648500: Computer Vision

Selected Publications ([Google Scholar Profile](#))

JOURNAL

- [1] **Hao-Chun Yang** and Chi-Chun Lee, "A Media-Guided Attentive Graphical Network for Personality Recognition Using Physiology"
IEEE Transactions on Affective Computing

PEER-REVIEWED CONFERENCE/WORKSHOP PAPER

- [1] Ya-Lin Huang, **Hao-Chun Yang**, and Chi-Chun Lee, "Federated Learning via Conditioned Mutual Learning for Alzheimer Disease Classification on T1w MRI"
43rd Annual International Conference of the IEEE Engineering in Medicine & Biology Society, EMBC 2021, (Virtual), Nov 1-5, 2021
- [2] **Hao-Chun Yang**, Wan-Ting Hsieh, and Pei-Chun Chen, "A Mixed-Domain Self-Attention Network for Multilabel Cardiac Irregularity Classification Using Reduced-Lead Electrocardiogram"
Computing in Cardiology, CinC 2020, Brno, Czech Republic, September 12-15
- [3] Woan-Shiuan Chien, **Hao-Chun Yang**, and Chi-Chun Lee, "Cross Corpus Physiological-based Emotion Recognition Using a Learnable Visual Semantic Graph Convolutional Network"
MM '20: The 28th ACM International Conference on Multimedia, ACM MM 2020, Virtual Event / Seattle, WA, USA, October 12-16, 2020
- [4] Wan-Ting Hsieh, Jeremy Lefort-Besnard, **Hao-Chun Yang**, Li-Wei Kuo, and Chi-Chun Lee, "Behavior Score-Embedded Brain Encoder Network for Improved Classification of Alzheimer Disease Using Resting State fMRI"
42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society, EMBC 2020, Montreal, QC, Canada, July 20-24, 2020
- [5] Ya-Lin Huang, Wan-Ting Hsieh, **Hao-Chun Yang**, and Chi-Chun Lee, "Conditional Domain Adversarial Transfer for Robust Cross-Site ADHD Classification Using Functional MRI"
2020 IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP 2020, Barcelona, Spain, May 4-8, 2020
- [6] **Hao-Chun Yang** and Chi-Chun Lee, "A Siamese Content-Attentive Graph Convolutional Network for Personality Recognition Using Physiology"
2020 IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP 2020, Barcelona, Spain, May 4-8, 2020
- [7] Wan-Ting Hsieh, **Hao-Chun Yang**, Fu-Sheng Tsai, Chon-Wen Shyi, and Chi-Chun Lee, "An Event-contrastive Connectome Network for Automatic Assessment of Individual Face Processing and Memory Ability"
IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP 2019, Brighton, United Kingdom, May 12-17, 2019
- [8] **Hao-Chun Yang** and Chi-Chun Lee, "An Attribute-invariant Variational Learning for Emotion Recognition Using Physiology"
IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP 2019, Brighton, United Kingdom, May 12-17, 2019
- [9] **Hao-Chun Yang** and Chi-Chun Lee, "Annotation Matters: A Comprehensive Study on Recognizing Intended, Self-reported, and Observed Emotion Labels using Physiology"
8th International Conference on Affective Computing and Intelligent Interaction, ACII 2019, Cambridge, United Kingdom, September 3-6, 2019
- [10] Wan-Ting Hsieh, **Hao-Chun Yang**, Ya-Tse Wu, Fu-Sheng Tsai, Li-Wei Kuo, and Chi-Chun Lee, "Integrating Perceivers Neural-Perceptual Responses Using a Deep Voting Fusion Network for Automatic Vocal Emotion Decoding"
2018 IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP 2018, Calgary, AB, Canada, April 15-20, 2018
- [11] **Hao-Chun Yang**, Fu-Sheng Tsai, Yi-Ming Weng, Chip-Jin Ng, and Chi-Chun Lee, "A Triplet-Loss Embedded Deep Regressor Network for Estimating Blood Pressure Changes Using Prosodic Features"
2018 IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP 2018, Calgary, AB, Canada, April 15-20, 2018