# Chad(Hao-Chun), **Yang**

PH.D · MACHINE LEARNING RESEARCH SCIENTIST

*Room 315, General Building III, No. 101, Section 2, Kuang-Fu Road, 30013 Hsinchu City, Taiwan*

(+886)968833251 | chadyang.hc@gmail.com | chadhgy.github.io | chad-yang

## Education

**NTHU(National Tsing Hua University)** — *Hsinchu, Taiwan*
Ph.D. in Electrical Engineering — *Sep.2016 - May.2022*

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

**NTHU(National Tsing Hua University)** — *Hsinchu, Taiwan*
B.S. in Electrical Engineering — *Sep.2012 - July.2016*

## Research Projects

**Affective Physiological Responses under Multimedia Stimuli** — *Taiwan*
Doctoral Researcher — *Sep.2018 - PRESENT*

- Improve physiological emotion recognition by 3.5% UAR using Transformer-based User-Centered modeling.
- Improve physiological personality recognition by 8% UAR through Auditorial-Visual guided Graphical Attention Networks.
- Study scientific evidence on subjective/intended emotion reactions on ECG/EDA signals with Shapley analysis.

**Study of The Alzheimer using Brain Imaging** — *Taiwan*
ML Research Scientist Cooperated with <National Health Research Institutes> — *Sep.2016 - PRESENT*

- Propose a Privacy-aware learning strategy *FedCM* improving heterogeneity Federated Learning on Medical Images.
- Brought neuroscientific insights into the brain's functional connectivity and the mechanism of face processing and memory.

**Cardiovascular Disease Detection** — *Taiwan*
ML Research Scientist Cooperated with <Inventec AI Center> — *Jan.2021 - Dec.2021*

- 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.

**The Effects of Task and Social Reflexivity on Group Performance** — *Taiwan*
ML Research Scientist Cooperated with <Dept. Business Administration, NTU> — *Sep.2018 - PRESENT*

- Study on Acoustic/Linguistic and Physiological signals fusion algorithms for group dynamics modeling.
- Design a Multi-modality Multi-subjects group interaction dataset.

## Enterprise Corporation

**C-Media Electronics** — *Taipei, Taiwan*
Senior Machine Learning Engineer — *Jan.2020 - Dec.2021*

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

**Institute for Information Industry (III)** — *Taipei, Taiwan*
Senior Machine Learning Engineer — *March.2020 - Nov.2020*

- 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.

**beBit, Inc.** — *Tokyo, Japan*
Machine Learning Engineer — *Jan.2018 - Jan.2019*

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

**Gamania Digital Entertainment Co., Ltd.** — *Taipei, Taiwan*
Machine Learning Engineer — *Sep.2016 - Sep.2018*

- 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.

## Skills

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|---|---|
| **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

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|---|---|---|
| 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

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|---|---|---|
| 2022 | **Member**, IEEE ICEIB | *Hsinchu, Taiwan* |
| 2021 | **Member**, IARIA CENTRIC | *Barcelona, Spain* |

## Teaching Experience

### 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, ACMMM 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*