Tzu-Ming Harry Hsu
徐子旻

Ph.D. in AI and Healthcare, MIT   h@stmharry.io
Entrepreneur, Scholar, Writer, Speaker, and Diver   +1 617-803-7785 / +886 928-494-198

- Entrepreneurial builder with experience leading cross-functional teams, scaling products from idea to launch, and turning research into practical impact.

- Researcher with peer-reviewed work spanning AI, medical imaging, and machine learning, with 3,685 Google Scholar citations.

- Taiwan-born, US-educated innovator seeking to elevate Taiwan's role as a global engineering powerhouse and promoting a culture of rapid iterative innovation.

- Ocean lover with an AIDA Instructor Certification and an SDI Open Water Scuba Diving Certification.

Education

Massachusetts Institute of Technology   2020 – 2022
Ph.D., Computer Science   Cambridge, MA

- Advisor: Peter Szolovits
- Dissertation: Effective Modeling of Medical Imaging Tasks with Constrained Data
- Research Areas: Computer Vision, Federated Learning, and Machine Learning for Healthcare.

Massachusetts Institute of Technology   2017 – 2020
Master's (S.M.), Electrical Engineering and Computer Science   Cambridge, MA

- Advisors: Peter Szolovits / Fadel Adib
- Thesis: Automatic Longitudinal Assessment of Tumor Responses
- Research Areas: Computer Vision, Machine Learning, Wireless Signal, and Signal Processing.

National Taiwan University   2011 – 2016
Bachelor (B.S.), Physics; and Bachelor (B.S.E.), Electrical Engineering   Taipei, Taiwan

- Grade: GPA: 3.99/4.00, Class Rank: 1/190

Professional Experience

CodeGreen Labs PBC   2023 – 2024
Co-founder and Chief Technology Officer (CTO)   Boston / Taipei

Building decentralized software solutions that empower climate-conscious investors and enable funding for initiatives aligned with the UN's 2030 Agenda.

- Rapid Growth: Achieved $1MM USD annual revenue with 10 team members.
- Extensive Partnerships: Established numerous partnerships with Microsoft, the Global Blockchain Business Council, the Gold Standard, the SDG Data Alliance, and PVBLIC, among others.
- Integrated Approach: Formed a collaborative team of top professionals from climate, finance, and software fields to drive innovation.
- Crossing Difficult Gaps: Developed decentralized systems with strong auditability, regulatory compliance, and interoperability within existing ecosystems.

Hashgreen Labs   2022 – 2023
Co-founder and Chief Technology Officer (CTO)   Boston / Taipei

Driving real-world impact with green blockchain technology, leveraging smart contracts and programmable data to solve critical problems.

- Capacity Building: Raised over $1MM USD in capital and led team growth from inception to 20 employees with robust hiring and review systems.
- Project Delivery: Secured and delivered projects for clients including the World Bank and Chia Network.
- Breakthrough Technology: Led development of decentralized finance protocols including a DEX and AMM, achieving an early milestone on the Chia blockchain.

International Academia of Biomedical Innovation Technology   2021 – Present
Consultant and Convener   Taipei, Taiwan

Driving innovation in biomedical technology through interdisciplinary collaboration, industry partnerships, and advanced training programs.

- Contributed to a community of 50+ members, supporting 8+ academic projects and 15+ publications in leading venues.
- Led a dental AI research team in collaboration with National Taiwan University Hospital.
- Co-organized demo events with 100+ participants to promote public education and awareness.

Massachusetts Institute of Technology   2018 – 2022
Research Assistant   Cambridge, MA

Pioneering new frontiers in medicine and AI through publication, peer review, and collaboration with leading organizations.

- Published 14 conference articles, 5 journal articles, one U.S. patent, and two degree theses.
- Served as a peer reviewer for 8 conferences and journals, reviewing 34 articles.
- Received media coverage from CBS, Engadget, TechCrunch, and MIT News.
- Collaborated with Google, Takeda Pharmaceutical, and Beth Israel Deaconess Medical Center.
- Awarded scholarships totaling 4 years in duration.

WorldQuant   2021 – 2021
Data Science Intern   Taipei, Taiwan

A quantitative investment firm that uses advanced technology and innovative research to analyze and forecast market trends.

- Researched and optimized market front-running strategies, improving market correlation by +1.5%.

Google   2019 – 2020
Student Researcher and Software Engineer Intern   Seattle, WA

Driving progress in Mobile Vision and Medical AI research groups through open-source research and development.

- Conducted research on deep federated learning and contributed to a rapidly growing field.
- Published 2 peer-reviewed papers on behalf of the company.
- Developed a scalable library for large-scale machine learning experiments across thousands of machines and 1000+ GPUs.
- Open-sourced research code and datasets for broader community use.

Brigham and Women's Hospital and Beth Israel Deaconess Medical Center   2019 – 2020
Research Trainee   Boston, MA

Research and deployment in clinical AI workflows.

- Published three research articles on liver tumor assessment, COVID-19 risk prediction, and pancreatic cancer assessment.
- Developed and implemented an AI patient screening pipeline in PACS workflows, screening 1,000+ patients.
- Managed shared computation resources for a 10+ member research unit.

Multimedia and Machine Learning Lab, Academia Sinica   2014 – 2016
Student Researcher   Taipei, Taiwan

Research on heterogeneous and semi-supervised domain adaptation for visual classification.

- Published 3 peer-reviewed papers and presented findings at top conferences and workshops.

Access IC Lab   2014 – 2015
Student Researcher   Taipei, Taiwan

Studied photoplethysmographic signals and developed motion-artifact reduction algorithms.

- Obtained 10th place in the 2015 IEEE Signal Processing Cup for heart-rate estimation.

Laboratory for Applied Logic and Computation in System Design (ALCom Lab)   2013 – 2014
Student Researcher   Taipei, Taiwan

Developed mathematical models for analog neural networks in collaboration with TSMC.

Leadership Experiences

Federation of Taiwanese Student Associations in New England (FTSANE)   2019 – 2020
Activities Officer   Boston, MA

MIT Taiwanese Student Association   2018 – 2019
President   Boston, MA

- Led coordination of 20+ events for a diverse community of over 100 members.
- Organized 10+ career workshops and helped plan 10+ national holiday celebrations.

Awards & Honors

Departmental Valedictorian (First Place at Graduation)   2016
Department of Electrical Engineering, National Taiwan University   Taipei, Taiwan

- Placed 1st among 200 classmates across all courses.

Silver Medal   2015
Altera Innovate Asia FPGA Design Competition   Taipei, Taiwan

- Placed 2nd among 20 international teams.
- Designed a product named EZBud with integrated algorithms that modulate music based on user sporting statistics.

Gold Medal / Overall Winner   2011
42nd International Physics Olympiad (IPhO)   Bangkok, Thailand

- Represented Taiwan and placed 1st in theory, experiment, and combined rankings among 400+ participants from 80+ countries.

Gold Medal / Experiment Winner   2011
12th Asian Physics Olympiad (APhO)   Tel Aviv, Israel

- Placed 1st in the experiment section among 100+ participants.

Gold Medal   2010
41st International Physics Olympiad (IPhO)   Zagreb, Croatia

Gold Medal / Experiment Winner   2010
11th Asian Physics Olympiad (APhO)   Taipei, Taiwan

- Placed 1st in the experiment section among 100+ participants.

Gold Medal   2008
5th International Junior Science Olympiad (IJSO)   Changwon, Korea

Artificial Intelligence to Assess Dental Findings from Panoramic Radiographs—A Multinational Study

2025

arXiv

Cited by 8

Yin-Chih Chelsea Wang, Tsao-Lun Chen, Shankeeth Vinayahalingam, Tai-Hsien Wu, Chu Wei Chang, Hsuan Hao Chang, Hung-Jen Wei, Mu-Hsiung Chen, Ching-Chang Ko, David Anssari Moin, Bram van Ginneken, Tong Xi, Hsiao-Cheng Tsai, Min-Huey Chen, Tzu-Ming Harry Hsu, Hye Chou

Intra-Oral Scan Segmentation Using Deep Learning

2023

BMC Oral Health

Cited by 42

Shankeeth Vinayahalingam, Steven Kempers, Julian Schoep, Tzu-Ming Harry Hsu, David Anssari Moin, Bram van Ginneken, Tabea Flugge, Marcel Hanisch, Tong Xi

Positional Assessment of Lower Third Molar and Mandibular Canal Using Explainable Artificial Intelligence

2023

Journal of Dentistry

Cited by 29

Steven Kempers, Pieter van Lierop, Tzu-Ming Harry Hsu, David Anssari Moin, Stefaan Berge, Hossein Ghaeminia, Tong Xi, Shankeeth Vinayahalingam

Emulating Clinical Diagnostic Reasoning for Jaw Cysts with Machine Learning

2022

Diagnostics

Cited by 22

Balazs Feher, Ulrike Kuchler, Falk Schwendicke, Lisa Schneider, Jose Eduardo Cejudo Grano de Oro, Tong Xi, Shankeeth Vinayahalingam, Tzu-Ming Harry Hsu, Janet Brinz, Akhilanand Chaurasia

Methods and Apparatus for Radio Frequency Sensing in Diverse Environments

2022

US Patent 11,308,291

Cited by 16

Unsoo Ha, Junshan Leng, Alaa Khaddaj, Yunfei Ma, Tzu Ming Hsu, Zexuan Zhong, Fadel Adib

Effective Modeling in Medical Imaging with Constrained Data

2022

PhD Thesis, Massachusetts Institute of Technology

Tzu-Ming Harry Hsu

Artificial Intelligence to Assess Body Composition on Routine Abdominal CT Scans and Predict Mortality in Pancreatic Cancer – A Recipe for Your Local Application

2021

European Journal of Radiology

Cited by 57

Tzu-Ming Harry Hsu, Khoschy Schawkat, Seth J Berkowitz, Jesse L Wei, Alina Makoyeva, Kaila Legare, Corinne DeCicco, S Nicolas Paez, Jim SH Wu, Peter Szolovits

Visceral Adiposity and Severe COVID-19 Disease: Application of an Artificial Intelligence Algorithm to Improve Clinical Risk Prediction

2021

Open Forum Infectious Diseases

Cited by 23

Alexander Goehler, Tzu-Ming Harry Hsu, Jacqueline A Seiglie, Mark J Siedner, Janet Lo, Virginia Triant, John Hsu, Andrea Foulkes, Ingrid Bassett, Ramin Khorasani, Deborah J Wexler, Peter Szolovits, James B Meigs, Jennifer Manne-Goehler

Adversarial Contrastive Pre-Training for Protein Sequences

2021

arXiv Preprint arXiv:2102.00466

Cited by 9

Matthew McDermott, Brendan Yap, Harry Hsu, Di Jin, Peter Szolovits

DeepOPG: Improving Orthopantomogram Finding Summarization with Weak Supervision
2021

Medical Image Computing and Computer Assisted Intervention (MICCAI 2021)
Cited by 8

Tzu-Ming Harry Hsu, Yin-Chih Chelsea Wang

Methods and Apparatus for Radio Frequency Sensing in Diverse Environments
2020

US Patent 10,872,209
Cited by 16

Unsoo Ha, Junshan Leng, Alaa Khaddaj, Yunfei Ma, Tzu Ming Hsu, Zexuan Zhong, Fadel Adib

Three-Dimensional Neural Network to Automatically Assess Liver Tumor Burden Change on Consecutive Liver MRIs
2020

Journal of the American College of Radiology
Cited by 23

Alexander Goehler, Tzu-Ming Harry Hsu, Ronilda Lacson, Isha Gujrathi, Raein Hashemi, Grzegorz Chlebus, Peter Szolovits, Ramin Khorasani

Chexpert++: Approximating the Chexpert Labeler for Speed, Differentiability, and Probabilistic Output
2020

Machine Learning for Healthcare Conference (MLHC 2020)
Cited by 45

Matthew BA McDermott, Tzu Ming Harry Hsu, Wei-Hung Weng, Marzyeh Ghassemi, Peter Szolovits

Automatic Longitudinal Assessment of Tumor Responses
2020

PhD Thesis, Massachusetts Institute of Technology
Cited by 3

Tzu-Ming Harry Hsu

Baselines for Chest X-Ray Report Generation
2020

Machine Learning for Health (ML4H) Workshop, NeurIPS 2020
Cited by 93

William Boag, Tzu-Ming Harry Hsu, Matthew McDermott, Gabriela Berner, Emily Alesentzer, Peter Szolovits

Federated Visual Classification with Real-World Data Distribution
2020

European Conference on Computer Vision (ECCV 2020)
Cited by 274

Tzu-Ming Harry Hsu, Hang Qi, Matthew Brown

Measuring the Effects of Non-Identical Data Distribution for Federated Visual Classification
2019

arXiv Preprint arXiv:1909.06335
Cited by 1959

Tzu-Ming Harry Hsu, Hang Qi, Matthew Brown

Transfer Neural Trees: Semi-Supervised Heterogeneous Domain Adaptation and Beyond
2019

IEEE Transactions on Image Processing
Cited by 21

Wei-Yu Chen, Tzu-Ming Harry Hsu, Yao-Hung Hubert Tsai, Ming-Syan Chen, Yu-Chiang Frank Wang

Clinically Accurate Chest X-Ray Report Generation
2019

Machine Learning for Healthcare Conference (MLHC 2019)
Cited by 398

Guanxiong Liu, Tzu-Ming Harry Hsu, Matthew McDermott, Willie Boag, Wei-Hung Weng, Peter Szolovits, Marzyeh Ghassemi

Unsupervised Multimodal Representation Learning Across Medical Images and Reports   2018

Machine Learning for Health (ML4H) Workshop, NeurIPS 2018   Cited by 51

Tzu-Ming Harry Hsu, Wei-Hung Weng, Willie Boag, Matthew McDermott, Peter Szolovits

Learning Food Quality and Safety from Wireless Stickers   2018

Proceedings of the 17th ACM Workshop on Hot Topics in Networks (HotNets 2018)   Cited by 95

Unsoo Ha, Yunfei Ma, Zexuan Zhong, Tzu-Ming Hsu, Fadel Adib

3D-Aware Scene Manipulation via Inverse Graphics   2018

Advances in Neural Information Processing Systems (NeurIPS 2018)   Cited by 321

Shunyu Yao, Tzu Ming Hsu, Jun-Yan Zhu, Jiajun Wu, Antonio Torralba, Bill Freeman, Josh Tenenbaum

Transfer Neural Trees for Heterogeneous Domain Adaptation   2016

European Conference on Computer Vision (ECCV 2016)   Cited by 80

Wei-Yu Chen, Tzu-Ming Harry Hsu, Yao-Hung Hubert Tsai, Yu-Chiang Frank Wang, Ming-Syan Chen

Connecting the Dots Without Clues: Unsupervised Domain Adaptation for Cross-Domain Visual Classification   2015

International Conference on Image Processing (ICIP 2015)   Cited by 2

Wei-Yu Chen, Tzu-Ming Harry Hsu, Cheng-An Hou, Yi-Ren Yeh, Yu-Chiang Frank Wang

Unsupervised Domain Adaptation with Imbalanced Cross-Domain Data   2015

International Conference on Computer Vision (ICCV 2015)   Cited by 90

Tzu Ming Harry Hsu, Wei Yu Chen, Cheng-An Hou, Yao-Hung Hubert Tsai, Yi-Ren Yeh, Yu-Chiang Frank Wang