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Education

- Ph.D., Department of Computer Science and Information Engineering, National Central University, 2011/6
- Master of Management, Polytechnic University, USA, 2001/6

Area of Specialty

- Artificial Intelligence
- Smart Internet of Things
- Extended Reality
- Network Security

Academic Experience

- Associate Professor, Department of Information Management, Southern Taiwan University of Science and Technology, 2026/2 to present
- Associate Professor, College of Metaverse, Taiwan National University of the Arts, 2024/8-2026/1
- Associate Professor, Department of Computer Science and Information Engineering, CCIT, National Defense University, 2018/4-2024/8
- Assistant Professor, Department of Computer Science and Information Engineering, CCIT, National Defense University, 2012/8-2018/3
- Lecturer, Department of Aviation Managment, R. O. C. Airforce Academy, 2003/2-2004/1

Journal Papers

1. Hsiu-Min Chuang, Fanpyn Liu, Chung-Hsien Tsai (2022). Early Detection of Abnormal Attacks in Software-Defined Networking Using Machine Learning Approaches. Symmetry, Vol. 14(6), 1178. (SCIE, IF=2.2)
2. Ang-Hsun Tsai, Chung-Hsien Tsai, Chao-Yang Lee (2021). The Hybrid Traffic Offloading Mode for Disaster-Resilient Communication Networks Based on User Mobility. Wireless Communications and Mobile Computing. (SCIE, IF=2.146)
3. Wen-Pin Chen, Ang-Hsun Tsai, Chung-Hsien Tsai (2019). Smart Traffic Offloading with Mobile Edge Computing for Disaster-Resilient Communication Networks. Journal of Network and Systems Management. (SCIE, IF=3.9)
4. Chung-Hsien Tsai*, Jiung-yao Huang (2018). Augmented reality display based on user behavior. Computer Standards and Interfaces, 55, pp. 171-181. (SCIE, IF=3.1, First & Corresponding Author)
5. Chung-Hsien Tsai*, Jiung-yao Huang (2018). PGPS: A Context-Aware Technique to Perceive Carrier Behavior from GPS Data. Journal of Internet Technology. (SCIE, IF=1.2, First & Corresponding Author)
6. Yi-Tung Chan, Shuenn-Jyi Wang, Chung-Hsien Tsai (2018). Real-time foreground detection approach based on adaptive ensemble learning with arbitrary algorithms for changing environments. Information Fusion, 39, pp. 154-167. (SCIE, IF=15.5, Rank: 4/204 in AI)
7. Ang-Hsun Tsai, Chung-Hsien Tsai, Wen-Pin Chen (2017). The Discussion of Disaster-oriented Functionalities for LTE Simulators in Emergency Communication Systems. Journal of Chung

Cheng Institute of Technology.

8. Ke-Han Yao, Jehn-Ruey Jiang, Chung-Hsien Tsai, Zong-Syun Wu (2017). Evolutionary Beamforming Optimization for Radio Frequency Charging in Wireless Rechargeable Sensor Networks. Sensors, 17(8). (SCIE, IF=3.5)
9. Chung-Hsien Tsai*, Yu-Ching Lin (2017). An Accelerated Image Matching Technique for UAV Orthoimage Registration. ISPRS Journal of Photogrammetry and Remote Sensing, 128, 130-145. (SCIE, IF=12.2, First & Corresponding Author)
10. Yi-Tung Chan, Shuenn-Jyi Wang, Chung-Hsien Tsai (2017). Extracting foreground ensemble features to detect abnormal crowd behavior in intelligent video-surveillance systems. Journal of Electronic Imaging. (SCIE, IF=1.0)
11. Jiung-yao Huang, Chung-Hsien Tsai* (2015). A Mobile Augmented Reality Learning Platform for Local Culture Course. Journal of Chung Cheng Institute of Technology. (Corresponding Author)
12. Jiung-yao Huang, Chung-Hsien Tsai*, Shing-Tsaan Huang (2012). Next Generation of GPS Navigation System. Communications of the ACM, Vol. 55, No. 3. (SCIE, IF=12.2, Rank: 1/60)
13. Jiung-yao Huang, et al., Chung-Hsien Tsai (2011). Research of Place-based 3D Augmented Community. Journal of Networks.
14. Jiung-yao Huang, et al., Chung-Hsien Tsai (2009). A 3D Campus on the Internet-A Networked Mixed Reality Environment. Transactions on Edutainment II, LNCS.
15. Jiung-yao Huang, Chung-Hsien Tsai (2007). A Wearable Computing Environment for the Security of A Large-Scale Factory. Lecture Notes in Computer Science (LNCS).
16. Chung-Hsien Tsai* (2019). Research on the Development of Synthetic Battlefield Training Environment for National Army Based on AI Wargaming. Insight and Strategy. (First & Corresponding Author)
17. Chung-Hsien Tsai*, Hsiu-Min Chuang (2018). Research on the Application of AI in Defense Technology. Defense Journal. (First & Corresponding Author)
18. Chung-Hsien Tsai*, Hui-Min Ko (2014). Research on Incorporating Disaster Prevention and Relief into Joint Operations Training System Simulation. Defense Journal. (First & Corresponding Author)

Conference Papers

1. Chung-Hsien Tsai* and Chia-Chi Yu (Oct 2025). An Adaptive Study on LLM Models Combined with RAG Technology in Western Art History Teaching. Taiwan Academic Network Conference (TANET) / National Computer Symposium (NCS), Yilan, Taiwan.
2. Chung-Hsien Tsai*, Yao-Chia Chuang, and Ting-Ting Yang (Dec 2025). A Study on the Performance of Federated Learning Hybrid Algorithms for Heterogeneous Network Attack Detection. The 34th National Defense Technology Symposium, Taoyuan, Taiwan.
3. Chung-Hsien Tsai*, Wei-Kuo Sung, and Hsiu-Min Chuang (Dec 2025). Research on Improving Airport Visibility Forecast Accuracy Using Deep Learning. The 34th National Defense Technology Symposium, Taoyuan, Taiwan.
4. Kai-Ten Fang, Chung-Hsien Tsai, Chi-Yu Li, Ting-Ting Yang, Li-Hsiang Shen, Chao-Lung Chou, Chia-Ning Luo, and Yao-Chia Chuang (Dec 2025). Research on Adaptive Heterogeneous Networks and Intelligent Security Technology for Multi-Domain Warfare Systems. The 34th National Defense Technology Symposium, Taoyuan, Taiwan.
5. Chun-Liang Kuo, Yu-Chuan Shih, Chung-Hsien Tsai, and Wen-Chien Huang (Dec 2025). Human Factors Risk Management Based on Precision Physiological Analysis—A Case Study of Chemical Defense Detection Operations. The 34th National Defense Technology Symposium, Taoyuan, Taiwan.
6. Hsiu-Min Chuang, Chung-Hsien Tsai*, and Wei-Kuo Sung (Sep 2025). Research on Enhancing Visibility Forecasting for Airports in Western Taiwan Using Deep Learning Frameworks. Conference on Weather Analysis and Forecasting, Taipei, Taiwan.
7. Jiung-Yao Huang and Chung-Hsien Tsai* (Mar 2024). Research on the Design and Interaction of Metaverse Piano Concerts. The 20th Taiwan Conference on E-Learning (TWELF), Chiayi, Taiwan.

8. Jiung-Yao Huang, Chung-Hsien Tsai*, Pei-Chi Hong, and I-Yi Pan (Jan 2025). Quantitative Study of Key Technologies and Involvement Enhancement for Metaverse Piano Concerts. I-SPAN 2025/Ubi-Media 2025, CCIS 2380, pp. 1–14.
9. Jiung-Yao Huang, Chung-Hsien Tsai*, Pei-Chi Hong, and I-Yi Pan (Jun 2024). Immersive Experience Design for Metaverse Concerts. Symposium on Intelligent Living Technology (ILS), Taichung, Taiwan.
10. Jiung-Yao Huang and Chung-Hsien Tsai* (Jun 2023). Design of an Integrated Physical-Virtual Metaverse Platform—A Case Study of "TNNUA Digital Twin Campus." Symposium on Metaverse and Digital Twin, Taipei, Taiwan.
11. Chung-Hsien Tsai, Fan-Ping Liu, Hsiu-Min Chuang, and Tai-Hung Lai (Nov 2022). Research on Introducing Artificial Intelligence into Software-Defined Networking (SDN) Orchestration Management and Security Detection. Taiwan Academic Network Conference (TANET), Taoyuan, Taiwan.
12. Yen-Yu Chen, Zhen-Fu Huang, Cheng-Hsien Lin, Chi-Yu Li, and Chung-Hsien Tsai* (Nov 2022). Network Orchestration and Network Function Virtualization (NFV) Services in Multi-Layer Network Architectures. The 31st National Defense Technology Symposium, Taoyuan, Taiwan.
13. Bo-Xin Liu, Chung-Hsien Tsai*, and Pei-Yu Lin (Nov 2021). Military Camouflage Detection Using Transfer Learning on BlendMask. The 18th International Conference on Automation Technology, Kinmen, Taiwan.
14. Ju-Dong Hong, Chung-Hsien Tsai*, Ming-Che Lu, Chu-Tung Ling, and Bo-Xin Liu (Aug 2021). Performance Evaluation of Deep-Learning Based Intelligent Surveillance System for Multiple Tasks. The 34th IPPR Conference on Computer Vision, Graphics, and Image Processing (CVGIP), Taipei, Taiwan.
15. Chia-Lin Hung, Ju-Dong Hong, Chung-Hsien Tsai, and Chao-Lung Chou (Feb 2021). Implementation and Evaluation of Deep Learning Based FastReID for Automatic Surveillance System. The 2nd International Symposium on Future ICT, Taichung, Taiwan.
16. Chu-Feng Li, Ju-Dong Hong, Hsiu-Min Chuang, and Chung-Hsien Tsai (Nov 2021). Research on Image Annotation Based on Deep Learning Technology. The 30th National Defense Technology Symposium, Taoyuan, Taiwan.
17. Chung-Hsien Tsai*, Ju-Dong Hong, Shun-Chi Wang, and Chao-Lung Chou (Nov 2021). Intelligent Video Surveillance System Architecture Design Based on Multi-Task Deep Learning. The 30th National Defense Technology Symposium, Taoyuan, Taiwan.

Dissertation

- "Next Generation GPS Navigation System," Department of Computer Science and Information Engineering, National Central University, 2011.

Professional Certifications

1. Gemini Certified Educator (Google), 2025/9
2. Artificial Intelligence Application Certification (IPOE Education), 2025/7
3. Teaching Knowledge Test (Cambridge Assessment English), 2021/10
4. Network+ (CompTIA), 2014/3
5. Level B Technician for Computer Software Application (Labor Affairs Council, ROC), 2002/2

Professional Experience

1. Section Chief of Network Systems and Teaching Service Section, Information Office, Tainan National University of the Arts, 2025/8-2026/1
2. Department Chair, Dept. of Computer Science and Information Engineering, Chung Cheng Institute of Technology, National Defense University, 2020/1-2023/1
3. Section Chief, Information Systems Section, Dept. of Computer Science and Information Engineering, Chung Cheng Institute of Technology, National Defense University, 2019-2020/1

Grants

1. Immersive Experience Research and Design for Metaverse Concerts, NSTC, 2023-2024. (Co-PI)
2. Research on Automated Surveillance Systems using Heterogeneous Information Fusion and Deep Learning, MOST, 2020-2021. (PI)

Entrusted Practical Projects

1. Improving Airport Visibility Forecast Accuracy using Deep Learning, Ministry of National Defense (MND), 2024. (PI)
2. AI-based SDN Network Orchestration Management and Security Detection, MND, 2021-2022. (PI)
3. Adaptive Heterogeneous Networks and Intelligent Security Technology for Multi-Domain Warfare (Integrated Project), MND, 2022-2026. (Co-PI)
4. Tactical Simulation of Submarine Warfare - Anti-Submarine Tactics, MND, 2022. (Co-PI)

Honors and Awards

1. Excellent Research Project, 2025 Defense Advanced Scientific Research Program
2. Senior Excellent Teacher Award, Ministry of Education, 2025
3. Excellent Teacher and Performance Evaluation Award, Institute of Technology, NDU, 2019
4. Best Paper Award, TANET 2016
5. Excellent Teacher Award, Ministry of National Defense, 2016
6. Best Paper Award (Information Technology Category), 24th National Defense Technology Symposium

Patents

1. "Packet Routing Method, Device, and System for Base Stations," ROC Invention Patent No. I528762
2. "Method for Behavior Perception and Sensing Device," ROC Invention Patent No. I525331