Ching-Chih Amber Tsao

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RESEARCH STATEMENT

My research interests encompass **Human-centered AI**, **Human-Robot Interaction**, **Ubiquitous Computing**, and **Brain-Computer Interface**. Particularly, I focus on exploring how sensing technologies can be integrated into daily life to enhance cognitive abilities, social interactions, and user experience. Some of my recent research projects include detecting social discomfort in shared rides, developing wearable BCI devices for user authentication, and investigating user behavior and decision-making strategies through EEG analysis.

EDUCATION

Aug. 2023 – May 2025
Dual M.S. in Applied Information Science and Information Systems
Cornell Tech, Cornell University, USA
Connective Media Concentration, Merit-based Scholarship Recipient, Maker Award Recipient

Aug. 2020 – Jun. 2023
B.S. in Management Information Systems
National Chengchi University, Taiwan

EXPERIENCES

Jan. 2024 – Present
Future Automation Research Lab, Cornell University
Research Intern, PI: *Prof. Wendy Ju*

- Researching on **social discomfort** and awkward silence in share-rides

Jun. 2024 – Dec. 2024
Brain-Computer Interface Lab, Academia Sinica
Research Intern, PI: *Dr. Yu-Te Wang*

- Researched on the use of **EEG** signals for **biometric authentication** [IEEE Brain Workshop]
- Developed a portable, affordable, modular **BCI headset** [SfN 24]

Dec. 2020 – Aug. 2023
Human-Automation Interaction Lab, National Chengchi University, Taiwan
EEG Team Lead / Research Assistant, PI: *Prof. Shih-Yi Chien*

- Researched on the impact of **explainable AI** on building trust in **human-generative-AI collaboration**
- Researched on the **decision-making** process in **human-robot collaboration** [HICSS-56]
- Researched on **neuromarketing** strategies in human-robot interaction [HRI'23]
- Researched on **topic modeling** the shifting research trends in the HRI fields [HRI'22]

Jul. 2022 – Aug. 2022
Innovation R&D Department, Sinyi Realty Inc., Taiwan
Data Analyst Summer Intern

- Developed the Address Plaque Recognition API: an **image recognition API** for collecting addresses, reduced time spent on typing addresses by 80%

PUBLICATIONS

Peer Reviewed Conference Papers

[C4] **Human-Robot Interaction in E-Commerce: The Role of Personality Traits and Chatbot Mechanisms – A Neuromarketing Research**
Yu-Wen Chang, Shih-Yi Chien, Yao-Cheng Chan, **Ching-Chih Tsao** (Mar. 2024)
Comp. ACM/IEEE International Conference on Human-Robot Interaction ***(HRI '24).*** *Boulder, CO.*

[C3] **The Influence of a Robot Recommender System on Impulse Buying Tendency**
Ching-Chih Tsao, Cheng-Yi Tang, Yu-Wen Chang, Yin-Hsuan Sung, Shih-Yi Chien, Szu-Yin Lin (Mar. 2023)
Comp. ACM/IEEE International Conference on Human-Robot Interaction ***(HRI '23)****. 672-676. Stockholm.*

[C2] **Assessing the Decision-Making Process in Human-Robot Collaboration Using a Lego-like EEG Headset**
Ching-Chih Tsao, Hao-Hsiang Chuang, Tsu-Han Tsao, Cheng-Yi Tang, Yu-Wen Chang, Chih-Ling Chu, Chi-Chien Sung, Cheng-Lin Hsieh, Yuan-Pin Lin, Shih-Yi Chien (Jan. 2023)
Proc. Hawaii International Conference on System Sciences ***(HICSS-56)****. 1529-1538. Maui, HI.*

[C1] **A Machine Learning Approach to Model HRI Research Trends in 2010~2021**
Chan Hsu, **Ching-Chih Tsao**, Yu-Liang Weng, Cheng-Yi Tang, Yu-Wen Chang, Yihuang Kang, Shih-Yi Chien (Mar. 2022)
Proc. ACM/IEEE International Conference on Human-Robot Interaction ***(HRI '22)****. 812-815. Online.*

Peer Reviewed Abstracts

[A2] **Gazo: A Standalone Modularized Light-weighted BCI Device**
Ching-Chih Tsao, Yu-Te Wang, Yu-Lin Chu (Oct. 2024)
Neuroscience 2024 ***(SfN 24).*** *Program No. LBA004.63. Chicago, IL.*

[A1] **BrainPrint: Innovative Head-Mounted EEG Technology for Secure Personal Identification**
Yu-Lin Chu, **Ching-Chih Tsao**, Chi-Ming Chung, Cian-Fong Hung, Yao-Yu Lee, Jui-Bang Lu, Yang Wu, Yi-Huan Chen, Yu-Te Wang (Oct. 2024)
2024 IEEE Brain Discovery & Neurotechnology Workshop. Chicago, IL.

PATENT

Head-Mounted Device and Method for Verifying Identity based on SSVEPs
Yu-Te Wang, Yu-Lin Chu, **Ching-Chih Tsao** (Pending, Aug. 2024).

SERVICES

Student Volunteer	Super Maker, Cornell Tech MakerLAB	*2024-2025*
Teaching Assistant	**Break through Tech AI Studio**, Cornell University	*2023*
	Introduction to Computer Science, National Chengchi University	*2022*
Workshop Speaker	**Introduction to EEG Analysis**, National Chengchi University	*2023*
Reviewer	Alt. CHI 2023, HRI 2023	*2023*
Student Ambassador	Cornell Tech Student Ambassador	*2023*
	UNESCO Hong Kong SDGs Ambassador (Golden Merits)	*2018*

HONORS AND AWARDS

Maker Award – student who shown the most innovation in their design process, **Cornell Tech**	*2025*
Conference Travel Grant – IEEE Brain, Chicago, IL, USA	*2024*
Conference Travel Grant – HRI'24, Boulder, CO, USA	*2024*
Merit-based Scholarship, Cornell University	*2023 - 2024*
Research Scholarship, National Science and Technology Council of Taiwan	*2021 - 2023*
Conference Travel Grant – HICSS-56, Maui, HI, USA	*2022*

Academic Excellence Award, National Chengchi University (Ranked #1/80) *2020*

Best Presentation Team Award - Champion (Tertiary Division), *2018*
PLAN International Hong Kong Youth Conference, "Digital Empowerment of Girls in Brazil."

SKILLS

Programming Languages	**Python**, **MATLAB**, **JavaScript**, **Java**, R, Swift
Prototyping	**3D Printing**, **Laser Cutting**, **CAD Modeling**, **ESP32**, **Arduino, Raspberry Pi**
Tools	**EEGLAB**, **Emotiv**, **TensorFlow**, PyTorch, Git
Languages	English (IELTS 8.0), Mandarin

REFEREES

Wendy Ju
Interaction Design Research Lab (Former Name: Future Automation Research Lab)
Cornell Tech, USA
wgj23@cornell.edu

Shih-Yi Chien
Human-Automation Interaction Lab
National Chengchi University, Taiwan
sychien@nccu.edu.tw

Yu-Te Wang
Brain-Computer Interface Lab
Academia Sinica, Taiwan
yutewang@citi.sinica.edu.tw