Ching-Chih Amber Tsao

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RESEARCH STATEMENT

My research interests encompass **Brain-Computer Interfaces (BCI)**, **Human-centered AI**, **Human-Robot Interaction**, and **Ubiquitous Computing**. 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 University, USA & Technion – Israel Institute of Technology, Israel Connective Media Concentration, Merit-based Scholarship Recipient
Aug. 2020 – Jun. 2023	**B.S. in Management Information Systems** National Chengchi University, Taiwan

EXPERIENCES

Jun. 2024 – Present	**Research Center for Information Technology Innovation, Academia Sinica** Research Intern, PI: *Dr. Yu-Te Wang* - Researching on the use of EEG signals for biometric authentication [SfN 24] - Developed a portable, affordable, modular BCI headset
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
Dec. 2020 – Aug. 2023	**Human-Automation Interaction Lab, National Chengchi University, Taiwan** Research Assistant, PI: *Prof. Shih-Yi Chien* EEG Team Lead *(Apr. 2021 - Aug. 2023)* - 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**
<u>Ching-Chih Tsao</u>, Cheng-Yi Tang, Yu-Wen Chang, Yin-Hsuan Sung, Shih-Yi Chien, and 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**
<u>Ching-Chih Tsao</u>, Hao-Hsiang Chuang, Tsu-Han Tsao, Cheng-Yi Tang, Yu-Wen Chang, Chih-Ling Chu, Chi-Chien Sung, Cheng-Lin Hsieh, Yuan-Pin Lin, and 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, <u>Ching-Chih Tsao</u>, Yu-Liang Weng, Cheng-Yi Tang, Yu-Wen Chang, Yihuang Kang, and Shih-Yi Chien (Mar. 2022)
Proc. ACM/IEEE International Conference on Human-Robot Interaction **(HRI '22).** *812-815. Online.*

Peer Reviewed Abstracts

[A1]   **Gazo: A Standalone Modularized Light-weighted BCI Device**
<u>Ching-Chih Tsao</u>, Yu-Te Wang, Yu-Lin Chu (Upcoming, Oct. 2024)
Society for Neuroscience Annual Meeting 2024 **(SfN 24).** *Program No. LBA004.63. Chicago, IL.*

SERVICES

Student Volunteer	Super Maker, Cornell Tech MakerLAB	*2024*
Teaching Assistant	**Break through Tech AI Studio**, Cornell University	*2023*
	• Mentored 20+ undergraduate student on their ML projects	
	Introduction to Computer Science, National Chengchi University	*2022*
	• Introduced git and front-end web development in class	
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

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*

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