Po-Sheng Cheng

Master of Industrial Design (Jun. 2026), Rhode Island School of Design
B.Sc. Bio-Mechatronics Engineering & B.A Economics, National Taiwan University

Publication

TeleSHift: Telexisting TUI for Physical Collaboration & Interaction

Andrew Chen, Tzu-Ling Yang, Shu-Yan Cheng, **Po-Sheng Cheng**, Tzu-Han Lin, and Kaiyuan Lin. 2022. In Proceedings of the 2022 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp/ISWC '22 Adjunct), https://doi.org/10.1145/3544793.3560323

- This work recieved the **Best Demo at Ubicomp/ISWC 2022**.
- In this work, a 3D tangible user interface (TUI) with telexisting communication framework for group-based collaboration is presented.
- I laid out the system architecture of the presented prototype in this work with ESP32 microcontroller, potentiometers, DC motors, etc. I also implemented the mechanical design and power supply circuit of the prototype.
- Additionally, my design for manufacturability (DFM) improvements helped reducing assembling time of the prototype to only 1/5.

Experiences

Electro-mechanical Engineering Intern, Logitech

UX survey, mechanics design

- Feb. - Jun. 2022
- I proposed an innovative keyboard switch, then conducted a UX survey with 50 interviewees to understand its target audience and lastly designed three working prototype to demonstrate the technology.
- Besides statistics with R for the UX survey, my engineering capabilities including modeling with Creo, SLA/3DP prototyping, electromagnet and microcontroller circuits design and stepper motor control were involved.
- I gained strong familiarity with the NPI (New Product Introduction) process in the tech industry while collaborating with many departments (PM, EE, ID) in the company.

College Student Researcher, NTU

Software development, system integration

- Jul. 2021 - Feb. 2022

- I developed a novel spectral mapping system that integrates several electrical/optical components like imaging sensors with LabVIEW and C++.
- By researching the readout sequence of the EMCCD and optimizing the algorithm, I reduced the scanning time by 26%.
- Also involved Flutter UI/UX, hyperspectral image processing, Electron Multiplying CCD and stepper motor control.
- I won the **2021 Technology Innovation Award** by CCMS, NTU and **College Student Research Creativity Award** by National Science and Technology Council of Taiwan (USD$660) with this project.

Project Lead, Bio-Electromagnetics Laboratory, NTU

Electrical system integration, mechanics design

- May. 2020 - Jul. 2022
- I designed an IoT machine to monitor the amount of bugs in farm fields with inhouse-designed microcontroller PCB and mechanics.
- I managed a complex BOM of both mechanical and electrical components for the iterations of the device with quotes from different vendor candidates.
- Technical aspect involved automatic control, IoT with Arduino (XBee), PCB design (Altium), Python, SolidWorks, Raspberry Pi, MySQL.

Competitions

Championship, 2021 National Thesis Competition for College Students

Covid-19's Impact on Online Video Streaming Platform from The Perspective of Consumer Preference. **Po-Sheng Cheng**, Ming-Chieh Chang, Hsuan-Yu Chou and others.

- I conducted a market survey with $\sim$700 samples and used regression analysis to understand how customer's preferences for online video streaming platform changed during the pandemic.
- We showed a surprising results that customers didn't find those platforms more appealing despite the pandemic forcing them to use those platforms more.
- Awarded NTD$30,000. Link to the paper.

Golden Medalist, 19th Mobileheroes Award

UI evaluation

- Sep. - Dec. 2020
- Category of 5G innovative application, awarded USD$10000 by Industrial Development Bureau of Taiwan.

- Our team ARGO has developed a AR platform that utilizes advanced image-based spatial recognition algorithm which enables real-time AR interactions on personal mobile devices. My main contribution was UI evaluation and design of the AR world for demo.