

## Research Interests

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**Human-Computer Interaction, Accessibility, Virtual and Augmented Reality, Haptics and Perception**

## Education

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**National Taiwan University (NTU)**, College of Electrical Engineering and Computer Science      Taipei, Taiwan  
B.Sc. in *Computer Science and Information Engineering (CSIE)*      09/2015-06/2019

## Research Experience

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**Research Assistant, NTU HCI LAB**      07/2019-05/2020

*Advisor: Prof. Lung-Pan Cheng (Dept. CSIE, NTU)*

- Research focus: **Haptics and Multimodal feedback in Mixed Reality** environment
- Project 1: Created a head-mounted vibrotactile feedback to reduce VR sickness and improve immersion for VR users during virtual navigation [c.5]
- Project 2: Developed a strength-training prototype game that uses a wearable orientation sensor to control a character flying vertically and avoid obstacles [c.6] [p.1]
- Project 3: Deployed a mixed-reality escape room experience that blends *physical* and *imaginary reality* by presenting interactions between two worlds using different physical phenomena
- **2 total papers** accepted to **ACM CHI 2020, MobileHCI 2020**

**Undergraduate Researcher, NTU HCI LAB**      06/2017-06/2019

*Advisors: Prof. Mike Y. Chen (Dept. CSIE, NTU) and Prof. Neng-Hao Yu (Dept. Design, NTUST)*

- Research focus: **Accessibility, Virtual and Augmented Reality, Interaction techniques**
- Project 1: Designed bubble-like speech visualization on the augmented reality devices to improve group conversation experiences for deaf and hard of hearing people [c.1]
- Project 2: Created the peripheral text-reading interface for people to observe real world via central visual field and read virtual information in periphery [c.2]
- Project 3: Built the head-worn haptic device that synchronized the user's step in VR while doing VR navigation to reduce the VR sickness [c.3]
- Project 4: Implemented the recommendation pipeline on suggesting optimal accessibility settings based on user's touchscreen interactions [c.4]
- Project 5: Proposed the interaction technique that allows people with motor impairments to acquire target by using the combinations of eye tracking cursor and simple hand gestures [a.1]
- **4 total papers** accepted to **ACM CHI 2018, CHI 2019 and IEEE VR 2019**

## Conference/Journal Publications

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[c.6] Sih-Pin Lai, Cheng-An Hsieh, Yu-Hsin Lin, Teepob Harutaipree, Shih-Chin Lin, **Yi-Hao Peng**, Lung-Pan Cheng, and Mike Y. Chen. 2020. StrengthGaming: Enabling Dynamic Repetition Tempo in Strength Training-based Exergame Design, In Proceedings of the 22nd International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI '20). ACM, New York, USA. [doi] [pdf] [video]

[c.5] **Yi-Hao Peng**, Carolyn Yu, Shi-Hong Liu, Chung-Wei Wang, Paul Taelle, Neng-Hao Yu, and Mike Y. Chen. 2020. WalkingVibe: Reducing Virtual Reality Sickness and Improving Realism while Walking in VR using Unobtrusive Head-mounted Vibrotactile Feedback, In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20). ACM, New York, USA, Paper 718, 12 pages. [doi] [pdf] [video]

[c.4] **Yi-Hao Peng**, Muh-Tarng Lin, Yi Chen, TzuChuan Chen, Pin Sung Ku, Paul Taelle, Chin Guan Lim, and Mike Y. Chen. 2019. PersonalTouch: Improving Touchscreen Usability by Personalizing Accessibility Settings based on Individual User's Touchscreen Interaction. In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI '19). ACM, New York, USA, Paper 683, 11 pages. [doi] [pdf]

[c.3] Shi-Hong Liu, Neng-Hao Yu, Liwei Chan, **Yi-Hao Peng**, Wei-Zen Sun, and Mike Y. Chen: PhantomLegs: Reducing Virtual Reality Sickness Using Head-Worn Haptic Devices. In Proceedings of the 2019 IEEE Conference on Virtual Reality and 3D User Interfaces (VR), Osaka, Japan, 2019, pp. 817-826. [doi] [pdf] [video]

[c.2] Pin-Sung Ku, Yu-Chih Lin, **Yi-Hao Peng**, and Mike Y. Chen: PeriText: Utilizing Peripheral Vision for Reading Text on Augmented Reality Smart Glasses. In Proceedings of the 2019 IEEE Conference on Virtual Reality and 3D User Interfaces (VR), Osaka, Japan, 2019, pp. 630-635. [doi] [pdf] [video]

[c.1] **Yi-Hao Peng**, Ming-Wei Hsi, Paul Taele, Ting-Yu Lin, Po-En Lai, Leon Hsu, Tzu-chuan Chen, Te-Yen Wu, Yu-An Chen, Hsien-Hui Tang, and Mike Y. Chen. 2018. SpeechBubbles: Enhancing Captioning Experiences for Deaf and Hard-of-Hearing People in Group Conversations. In Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18). ACM, New York, USA, Paper 293, 10 pages. [doi] [pdf] [video]

## Poster/Demo Publications

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[p.1] Sih-Pin Lai, Cheng-An Hsieh, Teepob Harutaipree, Shih-Chin Lin, **Yi-Hao Peng**, Lung-Pan Cheng, and Mike Y. Chen. 2019. FitBird: Improving Free-weight Training Experience using Wearable Sensors for Game Control. In Extended Abstracts of the Annual Symposium on Computer-Human Interaction in Play Companion Extended Abstracts (CHI PLAY '19 EA). ACM, New York, USA, 475-481. [doi] [pdf]

## Awards and Scholarships

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**Undergraduate Research Competition (NTU CSIE) - 2nd place 2018 and 1st place 2019**

**Appier Scholarship (2 times) - Conference travel grant for CHI 2018 and CHI 2019**

**Undergraduate Research Project Grant (Ministry of Science and Technology, Taiwan, 2018) [a.1]**

## Academic Services

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**Accessibility Chair  
Reviewer**

MobileHCI 2019  
CHI 2020, UIST 2020

## Teaching Experience

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**Teaching Assistant, Building Interactive Technology (CSIE5644) (🏆 Best TA Award)** 09/2019-01/2020  
- Instructed students to build interactive prototypes from scratch

**Teaching Assistant, HCI with Mobile Phones and Services (NM7645)** 09/2018-01/2019  
- Guided students to conduct HCI research under mobile context (Guest lecture: Any in HCI)

## Work Experience

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**Software Engineer Intern @ Junyiacademy (www.junyiacademy.org)** 05/2015-09/2016  
- Implemented data integration tool for internal analysis (w/ Python + JavaScript)  
- Produced weekly data report and reduced 99% of data processing time (10 mins -> 10 secs)

## Skills

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**Software:** C/C++, Python, OpenCV, JavaScript, React.js, Swift (iOS), Unity, R, SQL  
**Hardware:** Laser cutting, 3D printing, Soldering