Songming PING

Mobile: +44 07301394725 | E-mail: sp1924@ic.ac.uk

Address:SW11 2DW Winstanley Road A5.19. GriffonStudios

EDUCATIONAL BACKGROUND

Xi'an Jiaotong - Liverpool University   **Sept.2020-Sept.2024**

- *Dual BSc Information and Computing Science*   GPA: 3.9；Rank: 1/277
- Major Course: Linear Algebra, Multivariable Calculus, Artificial Intelligence, Algorithmic Foundations and Problem Solving, Java programming, Discrete Mathematics and Statistics, Data Structures, Operating Systems Concepts, Computer Nerwork, Computer Graphic, Game design, Robotics and AI Applications
- Awards：2022/23 University Academic Achievement Award；2023/24 University Academic Excellence Award

Imperial College London   **Sept.2024- Sept.2025**

MRes Medical Robotics and Image Guided Intervention

- Major Course: Minimally Invasive Surgery, Medical and Surgical Imaging, Image Guide Intervention, Sensing, perception and Neuroergonomics

RESEARCH EXPERIENCE AND EXTRA-CURRICULAR ACTIVITIES

HCI+Adaptive | XJTLU X-CHI Lab   **Mar.2023-Oct.2023**

Subject: Adaptive Voice(CHI 2024, Second author)

Advisor: Prof. Hai-Ning Liang (now at Hong Kong University of Science and Technology (Guangzhou))

- Developed a first-person perspective VR driving environment
- Employed linear integration optimisation algorithms to analyse and summarise driver preferences
- Complted the controlling of the actuation in unity
- Proposed adaptive driving system to decrease the drivers' reaction time by 14.3% and improve the accuracy by 10.7% compared to the baseline

Deep Learning+Smart Building | Municipal Key Lab for Intelligent Virtual Engineering   May 2023-Oct.2023

Subject: Digital Twin-based Smart Building Management (IEEE ISPA 2024,Third author)

Advisor: Prof. Yue Yong and Prof. Xiaohui Zhu

- Utilized point cloud reconstruction, depth cameras, and other methods to recreate room models within the building
- Developed the user interface and model visualization in UE, enabling user interaction with data
- Integrated temperature and humidity sensors to gather real-time, detailed indoor data
- Leveraged Internet of Things (IoT) technology to transmit sensor data efficiently
- Built the back-end server using Python and stored data in a cloud-based MySQL database
- Employed PyTorch Deep Learning to develop a personalized thermal comfort algorithm, utilizing neural networks for thermal comfort prediction

Reinforcement Learning+VR | XJTLU X-CHI Lab   **Mar.2023-Sept.2023**

Subject: Adaptive Audience (IEEE VR submitted)

Advisor: Prof. Hai-Ning Liang

- Aimed to enhance player performance and overall gaming experience
- Utilized the VRFan-Network to detect participants' real-time emotions, focusing on arousal and valence
- Investigated how emotions impact player performance and extracted user preferences for NPC audience presentation styles during the initial study
- Applied on-policy reinforcement learning to adapt the behavior, sound, and size of the NPC audience based on different emotional states'

VR+LLMS+ Pilot assistance | NYU VIDA Lab   **May.2024-Sept.2024**

Subject: AdaptiveCopilot (IEEE VR submitted)

Advisor: Prof. Jing Qian

- Used fNIRS to measure pilots' cognitive states and adapt feedback to optimize pilot performance during flight tasks.

- Conducted a case study with eight pilots, including recreational and Black Hawk pilots, showing that adaptive feedback improved cognitive load management and performance.
- Developed adaptive strategies for real-time guidance systems based on pilot performance data, contributing to future AI-assisted flight systems.

Pass through+VR | XJTLU X-CHI Lab   **Sept.2023-May.2024**
Subject: Developing a Pass-through Benchmark for VR HMDs (IEEE VR submitted)
Advisor: Prof. Hai-Ning Liang
- Assessed the feasibility and limitations of pass-through technology in VR, with a focus on its application in everyday scenarios
- Analyzed the advantages and disadvantages of pass-through technology by evaluating key factors such as contrast, resolution, distortion, color accuracy, exposure, noise, dynamic range, depth perception, motion blur, delay, and more
- Provided recommendations for further application development and technology improvements based on these findings

Collaborate Learning+VR | XJTLU X-CHI Lab，XJTLU Language Center   **May 2022-Jan.2023**
Subject: The Impact of VR Interactive Scenarios on Language Learning (paper submit to Immersive Learning Research Network)
Advisor: Prof. Hai-Ning Liang and Prof. Airong Wang
- Created Unity scenes, including classrooms, apartments, and conference rooms, and implemented VR interaction settings
- Applied Python and JavaScript to establish network communication, deploying servers to enable multi-device access for collaborative VR interactions
- Packaged and deployed the software to Quest 2 for in-class experiments over half a semester
- Utilized Python semantic recognition and neural networks to analyze experimental data, train models, draw conclusions, and generate reportss

PUBLICATION
- AdaptiveVoice: Cognitively Adaptive Voice Interface for Driving Assistance
  Proceedings of the CHI Conference on Human Factors in Computing Systems, 1-18
  S Wen, **S Ping,** J Wang, HN Liang, X Xu, Y Yan
- Smart Building Management System Based on Digital Twin: A Case Study on Real-Time Environmental Monitoring and Thermal Comfort Prediction
  IEEE ISPA 2024
  Q. Gao, Y. Chu, Z. Peng, **S. Ping,** Y. Jin, J. Xiang, S. Ji, X. Xie, X. Zhu, and Y. Yue.
- AdaptiveCopilot IEEE VR 2025 (submit)
  S. Wen, M. Middleton, **S. Ping**, N. N. Chawla, G. Wu, B. S. Feest, C. Nadri, Y. Liu, D. Kaber, M. Zahabi, R. P. McMahan, X. "Orson" Xu, R. McKendrick, J. Qian, C. Silva
- AdaptiveAudience IEEE VR 2025 (submit)
  S. Wen, **S. Ping**, W Xu, Y Yan, HN Liang

PROFESSIONAL EXPERIENCE
Nanjing Zhongxing Telecom Equipment Co., Ltd   **Jun.2022-Aug.2022**
Software Development and Testing Engineer
- Participated in OMCI related development and learned about GPON/EPON applications
- Designed the function test cases of optical access equipment and completed the corresponding tests
- Completed basic hardware equipment and automation test and basic automation equipment development
- Participated in the smart home technology project, understood and practiced the advanced AI control system

Hiramatsu Trading Co., LTD Japan   **Jan.2022-Feb.2022**
Software Development Engineer & Data Analyst

- Collaborated with full-stack engineers to develop a client-facing app and designed web pages for the company
- Utilized JavaScript and HTML to configure the user interface and front-end frameworks, enabling users to check portfolio balances, review wish list companies, and set up price alerts
- Programmed various trading order options and integrated risk management features to promote secure trading practices
- Established and maintained a MySQL and Redis database to conduct delivery tests, manage data queries, and ensure efficient data retrieval
- Implemented machine learning models to preprocess and simulate data, extracting user features to enhance the company's targeted advertising strategies

SKILLS AND INTERESTS
- **Language:** Native Chinese speaker and fluent in English
- **IT:** Proficient in Microsoft office, Python, PHP, C++, JavaScript, SQL, Bash, JAVA
- **Frameworks:** Scikit, NLTK, SpaCy, TensorFlow, Keras, Django, Flask, NodeJS, LAMP
- **Tools:** Unity, Kubernetes, Docker, GIT, PostgreSQL, MySQL, SQLite
- **Platforms:** Linux, Web, Windows, Arduino, Raspberry, AWS, GCP, Alibaba Cloud, IBM Cloud
- **Interests:** Piano(Grade10), Debate, Game Development, Go, Speech