Shufan Yu

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EDUCATION

2019 – **Ph.D. student in Educational Technology. Advisor: Dr. Qingtang Liu**

Virtual Learning Lab, Central China Normal University, Wuhan, China

2021 – 2022 **Visiting Scholar in cognitive psychology. Advisor: Dr Mina C. Johnson-Glenberg**

Embodied Games Lab, Arizona State University, Tempe, AZ, USA

2016 – 2019 **M.S. in Educational Technology. Advisor: Dr. Qingtang Liu**

Virtual Learning Lab, Central China Normal University, Wuhan, China

2012-2016 **B.E. in Digital Media Technology, 2016**

Yancheng Teachers University, Yancheng, China

RESEARCH

Interest

- XR-based Learning
- Virtual experiment
- Embodied cognition
- Computer supported collaborative learning (CSCL)

Research project

2022-2023 **Research on the effect of level of embodiment and external representation of a virtual real mixed electric circuit on students' learning performance** (funded by excellent doctoral dissertation project of Central China Normal University; Grant No: 2022YBZZ025)

PI: Investigate the effects of some design factors (e.g., embodiment, representation) of an AR-based electric circuit learning tool on students' learning.

2020-2021 **Research on Key Technologies of constructing Virtual and Real Fusion Experimental Environment** (funded by excellent doctoral dissertation project of Central China Normal University; Grant No: 2020YBZZ037)

PI: Investigate the key technology to develop assemble and deducible experimental components for an AR-based electrical experiment.

2019-2020 **Research on the development and implementation of an AR-based magnetism learning tool** (funded by innovation project of graduate students of Central China Normal University; Grant No: 2019CXZZ038)

PI: Investigate the key technology to develop a virtual-real mixed magnetism learning tool and conduct a quasi-experiment to explore its effects.

2018-2020 **Research on development system for virtual and real fusion experiments of multimodal natural interaction** (funded by self-determined researcher funds of CCNU from the colleges' basic research and operation of MOE (Ministry of Education in China; Grant No: CCNU18JCXK03)

Co-PI: Design, develop, and assessment the AR/VR-based instructional virtual experiments.

2016-2019 **Key Technology Research and Demonstration of Tujia music culture digital protection and display** (funded by Chinese National Key Technology Research and Development Program of the Ministry of Science and Technology of China; Grant No: 2015BAK03B03)

Co-PI: Design and develop the Tujia virtual dance teaching system based on Kinect

Publication

Yu, S., Liu, Q., Liu, J., Ma, J., & Yang, Y. (2023). Integrating augmented reality into acoustics learning and examining its effectiveness: a case study of Doppler effect. *Education and Information Technologies*. https://doi.org/10.1007/s10639-023-12091-y

Gong, X., **Yu, S**., Xu, J., Qiao, A., & Han, H. (2023). The effect of PDCA cycle strategy on pupils' tangible programming skills and reflective thinking. *Education and Information Technologies*, *0123456789*. https://doi.org/10.1007/s10639-023-12037-4 **(Corresponding author)**

Johnson-Glenberg, M. C., Yu, C. S. P., Liu, F., Amador, C., Bao, Y., **Yu, S**., & LiKamWa, R. (2023). Embodied mixed reality with passive haptics in STEM education: randomized control study with chemistry titration. *Frontiers in Virtual Reality*, *4*(July), 1–20. https://doi.org/10.3389/frvir.2023.1047833

Yu, S., Liu, Q., Johnson-Glenberg, M. C., Han, M., Ma, J., Ba, S., & Wu, L. (2023). Promoting musical instrument learning in virtual reality environment: Effects of embodiment and visual cues. *Computers & Education*, 198, 104764. https://doi.org/10.1016/j.compedu.2023.104764

Liu, Q., Ma, J., **Yu, S**., Wang, Q., & Xu, S. (2023). Effects of an Augmented Reality-Based Chemistry Experiential Application on Student Knowledge Gains, Learning Motivation, and Technology Perception. *Journal of Science Education and Technology*, *32*, 153–167. https://doi.org/10.1007/s10956-022-10014-z

Yu, S., Liu, Q., Ma, J., Le, H., & Ba, S. (2022). Applying Augmented reality to enhance physics laboratory experience: does learning anxiety matter? *Interactive Learning Environments*, 1–16. https://doi.org/10.1080/10494820.2022.2057547

Wang, C., & **Yu, S**. (2021). Tablet-to-student ratio matters: Learning performance and mental experience of collaborative inquiry. *Journal of Research on Technology in Education*, 0(0), 1–17. (Corresponding author)

Liu, Q., **Yu, S**., Chen, W., Wang, Q., & Xu, S. (2021). The effects of an augmented reality based magnetic experimental tool on students' knowledge improvement and cognitive load. *Journal of Computer Assisted Learning*, *37*(3), 645–656. https://doi.org/10.1111/jcal.12513

(Corresponding author)

Yang, W., Qingtang, L., Haoyi, H., Hairu, Y., **Shufan, Y.**, Huixiao, L., & Yangyang, Y. (2018). Personal Active Choreographer: Improving the Performance of the Tujia Hand-Waving Dance.

IEEE Consumer Electronics Magazine, 7(4), 15–25.

Proceeding

Liu, Q., Sun, L., Ma, J., **Yu, S.,** & Wu, L. (2023). Geometry Wall: An Embodied Gesture-based Game for Supporting Spatial Ability. *2022 IEEE International Conference on Teaching, Assessment and Learning for Engineering (TALE)*, 258–263.

Shufan, Y., Qingtang, L., Suxiao, X., Yuanyuan, Y., & Linjing, W. (2018). Design and Practice of Exploratory Virtual Experiment in Physics Discipline. *Proceedings of the 2018 IEEE International Conference on Teaching, Assessment, and Learning for Engineering (TALE)*, Wollongong, Australia. (presentation)

Liu, Q., **Yu, S**., Lin, L., Xu, S., & Wu, L. (2018). Design and Implementation of an Immersive Virtual Reality Biological Courseware—Miraculous Eyeball. *Proceedings of the 2018 International Conference on Blended Learning (ICBL)*, Kansai, Japan. (presentation)

Liu, Q., **Yu, S.**, Wang, Y., Le, H., & Yuan, Y. (2017). A hand-waving dance teaching system based on kinect. *Proceedings of the 2017 International Conference on Blended Learning (ICBL)*, Hongkong, China. (presentation)

Liu, Q., Xu, S., **Yu, S.**, Yang, Y., Wu, L., & Ba, S. (2019). Design and implementation of an ar-based inquiry courseware - Magnetic field. *Proceedings of the 2019 International Symposium on Educational Technology (ISET)*, Hradec Králové, Czech Republic.

Zhai, X. M., Meng, N., & **Yu, S**. (2019). Investigating Using Behaviors of E-dictionary with Multiple Design: A Perspective from the Integration of Eye-Tracking Technique and Stimulated Recall. *Proceedings of the 2018 IEEE International Conference on Teaching, Assessment, and Learning for Engineering (TALE)*, Wollongong, Australia.

Yang, Y., Liu, Q., Wu, L., Xu, S., **Yu, S.**, & Zhang, N. (2019). Design and development of mobile augmented reality for mathematical experiments. *Proceedings of the 2019 International Symposium on Educational Technology (ISET)*, Hradec Králové, Czech Republic.

Software Copyright

An education game based on Leapmotion -- cellular immunity

A Tujia Hand-waving dance teaching system based on kinect

A Tujia Sayeerhe dance teaching system based on kinect

A virtual experiment platform based on AR technology

Experimental system of light polarization based on augmented reality technology

Chinese National Invention Patent

An assessment method for virtual dance system (2017)

A teaching method and system for virtual dance (2018)

A magnetic field visualization method, system, and equipment for virtual-real fusion experiments (2020)

HONORS AND AWARDS

National Scholarship for Graduate Students, Ministry of Education of the PRC, 2021.

First prize, the 3rd “iTeach” National College Students Digital Education Application Innovation Competition, Ministry of Education of the PRC, 2019.

Second Prize, the “Internet+” competition of the school of Educational information technology, CCNU, 2018

National Scholarship for Graduate Students, Ministry of Education of the PRC, 2018.

The scholarship for outstanding graduates, CCUN, Oct. 2017

PROFESSIONAL MEMBERSHIP

Modern Educational Technology Branch of Chinese Institute of Electronics

Reviewer：Journal of computer assisted learning, Computers & Education, Education and information technologies, Journal of Research on Technology in Education, Journal of educational computing research

PROFESSIONAL SKILL

Specialized software: SPSS, Visual Studio, Photoshop, Premiere, 3DS max etc

Programing language: C, C #, R

3D game engine technology (UNITY)

XR development: Vuforia, VR_TK