

# Yiming Luo, Ph.D.

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## Employment History

- Sep/2019 – Present..
- 📌 **Research Assistant** X-CHI Lab (Leader: Prof. Hai-Ning Liang), Xi'an Jiao-tong Liverpool University, Suzhou, China.
  - 📌 **Teaching Assistant** Department of Computer Science, Xi'an Jiao-tong Liverpool University, Suzhou, China.
- Jul/2017 – Sep/2017
- 📌 **Intern** Department of Engine, SAIC Motor Corporation Limited, Shanghai, China.







## Education

- Sep/2019 – Present..
- 📌 **Ph.D., University of Liverpool** in Computer Science & Software Engineering. Thesis title: *Teleoperation of Mobile Unmanned Robots in Virtual Reality*  
Supervisor: Hai-Ning Liang, Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China  
Second Supervisor: Shan Luo, Associate Professor, King's College London, London, UK
- Sep/2017 – Sep/2018
- 📌 **M.Sc., University of Southampton** in Systems, Control & Signal Processing. Thesis title: *Sensors for measurement of object gripping.*
- Sep/2015 – Jun/2017
- 📌 **B.Eng., University of Liverpool** in Electrical & Electronics Engineering. Thesis title: *Control of a wind turbine for supporting power grid frequency*
- Sep/2013 – Jun/2015
- 📌 **Y1 - Y2, Xi'an Jiaotong Liverpool University** in Electrical & Electronics Engineering.

## Project Work


- Mar/2022 – Present..
- 📌 **Dynamic edges enhancement: A telepresence method based on two binocular depth cameras** (Team)  
Lead a team of postgraduates to enable dynamic edge enhancement of binocular images in UGV telepresence using depth information from two depth cameras.
- Sep/2021 – Mar/2022
- 📌 **World-in-Miniature (WiM) technology in UGV teleoperation** (Team)  
Lead a team of Ph.D. to investigate a remote manipulation method based on the visualization of the miniature virtual world and the grasping interaction of the miniature virtual surrogate of UGV.
- Mar/2021 – Sep/2021
- 📌 **Complementary colors edge enhancement: an edge enhancement-based teleoperation method** (Team)  
Lead a team of postgraduates to investigate an edge enhancement for telepresence based on the theory of highlighting related to complementary colors.

## Project Work (continued)



- Sep/2020 – Mar/2021     **AirNeck: a prototype for wind haptic feedback around human neck** (Team)  
Lead a team of undergraduates to realize real-time wind haptic feedback on the human neck to simulate natural wind resistance during UGV teleoperation.
- Mar/2020 – Sep/2020     **Stereoscopic film: a binocular camera-based telepresence method** (Team)  
Lead a team of undergraduates to realize real-time image transmission using a binocular camera and provide a perspective similar to a stereoscopic movie in a VR environment for UGV telepresence.
- Sep/2019 – Mar/2020     **Haptic on HMD: A distance perception method** (Individual)  
Complete all software and hardware programming, constructions, and experimental site settings individually. Realize real-time distance perception using in-HMD vibro-tactile feedback during UGV teleoperation.
- Mar/2018 – Sep/2018     **Sensors for measurement of object gripping** (Individual)  
Investigate the data visualization of measurement of object gripping with inertial measurement units (IMUs).
- Mar/2017 – Sep/2017     **Control of a wind turbine for supporting power grid frequency** (Individual)  
Investigate the control of wind turbines to provide operations to achieve the maximum wind power extraction and provide constant power above the rated wind speed.
- Sep/2015 – Sep/2016     **Autonomous on-water vehicle for searching and mapping** (Team)  
Lead a team and be responsible for the assembly and programming of the hardware and the setup of the experimental site. Implement automatic drawing and visualization of real-time obstacle map.

## Research Publications

### Journal Articles

- 1    **Luo, Y.**, Wang, J., Shi, R., Liang, H.-N., & Luo, S. (2022). In-device feedback in immersive head-mounted displays for distance perception during teleoperation of unmanned ground vehicles. *IEEE Transactions on Haptics*, 15(1), 79–84.  doi:10.1109/TOH.2021.3138590

### Conference Proceedings

- 1    Li, Z., **Luo, Y.**, Wang, J., Pan, Y., Yu, L., & Liang, H.-N. (2022). Collaborative remote control of unmanned ground vehicles in virtual reality. In *2022 2nd international conference on interactive media, smart systems and emerging technologies (imet)*.
- 2    **Luo, Y.**, Wang, J., Pan, Y., Luo, S., Irani, P., & Liang, H.-N. (2022). Teleoperation of a fast omnidirectional unmanned ground vehicle in the cyber-physical world via a vr interface. In *The 18th acm siggraph International conference on virtual-reality continuum and its applications in industry (vrcai 2022)*.
- 3    Liu, Y., Lin, Y., Shi, R., **Luo, Y.**, & Liang, H.-N. (2021). Relicvr: A virtual reality game for active exploration of archaeological relics. In *Extended abstracts of the 2021 annual symposium on computer-human interaction in play* (pp. 326–332).  doi:10.1145/3450337.3483507
- 4    **Luo, Y.**, Wang, J., Liang, H.-N., Luo, S., & Lim, E. G. (2021). Monoscopic vs. stereoscopic views and display types in the teleoperation of unmanned ground vehicles for object avoidance. In *2021 30th IEEE international conference on robot & human interactive communication (ro-man)* (pp. 418–425).  doi:10.1109/RO-MAN50785.2021.9515455

## In-Progress Papers

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|---------------------|---|
| <b>Under Review</b> | ■ <i>Augmenting Performance of VR-mediated Teleoperation of Unmanned-Ground Vehicles Using Edge Detection</i>                               |
| <b>Preparing</b>    | ■ <i>Supporting Awareness in the Virtual Environment: A Comprehensive Review Teleoperation of Mobile Unmanned Robots in Virtual Reality</i> |
|                     | ■ <i>A Telepresence Method to Enhance Dynamic Edges Based on Binocular Depth Cameras</i>  |
|                     | ■ <i>Edge Enhancement for Improved Teleoperation of Unmanned Ground Vehicles Using Virtual Reality</i>                                      |

## Skills

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| Coding    | ■ C, C++, C#, Java, Python, R, HTML...   |
| Tools     | ■ Unity3D, SPSS, MS, PS, $\LaTeX$ , Matlab, VICON...   |
| Languages | ■ English (Fluent) reading, writing and speaking competencies, Chinese (Native).   |
| Misc.     | ■ Academic research, teaching, training, consultation, $\LaTeX$ typesetting and publishing; Working out, playing and developing games... |