Stuttgart Center for Simulation Science (SimTech)
Perceptual User Interfaces Group
Computational Biophysics and Biorobotics Group
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Ph.D.

Zhiming Hu

Curriculum Vitae

Research Interests

My research interests include virtual reality, human-computer interaction, eye tracking, and human behaviour modelling. The long-term research goal is to build a human-aware intelligent interactive system that can accurately model human behaviours in activities of daily living. My previous research mostly focused on the modelling of human eye gaze behaviour. I am now extending my research to other human behaviours, e.g. human body motions, as well as scene-aware/context-aware behaviour modelling for daily activities.

Academic Positions

- **Post-doctoral Researcher** 2022.08-now
  Perceptual User Interfaces Group, Led by Prof. Andreas Bulling
  Computational Biophysics and Biorobotics Group, Led by Prof. Syn Schmitt
  Stuttgart Center for Simulation Science (SimTech)
  University of Stuttgart

Education

- **Ph.D.** in Computer Software and Theory 2017.09-2022.07
  Graphics & Interactive Lab., **Peking University**, Supervised by Prof. Guoping Wang
- **B.Eng.** in Optical Engineering 2013.09-2017.07
  School of Optics and Photonics, **Beijing Institute of Technology**

Awards & Honors

- SimTech Research Fellowship, 2022
- National Scholarship (top 2%), 2021
- TVCG Best Journal Nominees Award (IEEE VR 2021, top 2%), 2021
- CSC (China Scholarship Council) Scholarship, 2020

- Chancellor's Scholarship (top 2%), 2020
- Leo KoGuan Scholarship (top 5%), 2019
- Leader Scholarship (top 0.2%, 7 out of over 3800 students), 2017
- National Scholarship (top 2%), 2016
- National Scholarship (top 2%), 2014

Professional Activities & Talks

Reviewing

- Journals: IMWUT, TiiS, T-MM, TVCG, IJHCI, MTAP
- Conferences: CVPR, ICCV, ECCV, UIST, IEEE VR, ISMAR

Organizing Committee

- Virtualization Chair for ETRA 2024
- Associate Chair for MuC 2023
- Technical Program Committee member for iWOAR 2023

Invited Talks

- Analysis and Prediction of Human Visual Attention in Virtual Reality. Southeast University, China, Hosted by Prof. Ding Ding, June, 2022.
- Recognizing User Tasks from Eye and Head Movements in Immersive Virtual Reality. IEEE VR 2022, Hosted by Prof. Kiyoshi Kiyokawa, March, 2022.
- Forecasting Eye Fixations in Task-Oriented Virtual Environments. GAMES Webinar 2021, Hosted by Prof. Xubo Yang, September, 2021.
- Eye-Head Coordination Model for Real-time Gaze Prediction. 2019 International Conference on VR/AR and 3D Display, Hosted by Prof. Feng Xu, June 2019.

Teaching

- Machine Perception and Learning, University of Stuttgart, 2022, Lecturer
- Computer Graphics, Peking University, 2018, Teaching Assistant
- Image and Video-Based 3D Reconstruction, Peking University, 2018, Teaching Assistant
- Programming Basics, Peking University, 2018, Teaching Assistant

Publications

* Corresponding author

1. Chuhan Jiao, **Zhiming Hu***, Mihai Bâce, and Andreas Bulling. SUPREYES: SUPer Resolution for EYES Using Implicit Neural Representation Learning. ACM Symposium on User Interface Software and Technology, 2023.
2. Guanhua Zhang, Matteo Bortoletto, **Zhiming Hu***, Lei Shi, Mihai Bâce, Andreas Bulling. Exploring Natural Language Processing Methods for Interactive Behaviour Modelling. Proc. IFIP TC13 Conference on Human-Computer Interaction, 2023.

3. Mayar Elfares, **Zhiming Hu**, Pascal Reisert, Andreas Bulling, Ralf Küsters. Federated Learning for Appearance-based Gaze Estimation in the Wild. Annual Conference on Neural Information Processing Systems. PMLR, 2023.
4. **Zhiming Hu**, Andreas Bulling, Sheng Li, Guoping Wang. EHTask: Recognizing User Tasks from Eye and Head Movements in Immersive Virtual Reality. IEEE Transactions on Visualization and Computer Graphics, 2023, 29(4): 1992-2004.
5. Zehui Lin, Xiang Gu, Sheng Li, **Zhiming Hu**, Guoping Wang. Intentional Head-Motion Assisted Locomotion for Reducing Cybersickness. IEEE Transactions on Visualization and Computer Graphics, 2022, 29(8): 3458-3471.
6. **Zhiming Hu**, Sheng Li, Meng Gai. Research progress of user task prediction and algorithm analysis (in Chinese). Journal of Graphics, 2021, 42(3): 367-375.
7. **Zhiming Hu**. Eye Fixation Forecasting in Task-Oriented Virtual Reality. Proceedings of the 2021 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops, 2021: 707-708.
8. **Zhiming Hu**, Andreas Bulling, Sheng Li, Guoping Wang. FixationNet: Forecasting Eye Fixations in Task-Oriented Virtual Environments. IEEE Transactions on Visualization and Computer Graphics, 2021, 27(5): 2681-2690.
   TVCG Best Journal Nominees Award
9. **Zhiming Hu**. Gaze Analysis and Prediction in Virtual Reality. Proceedings of the 2020 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops, 2020: 543-544.
10. **Zhiming Hu**, Sheng Li, Congyi Zhang, Kangrui Yi, Guoping Wang, Dinesh Manocha. DGaze: CNN-Based Gaze Prediction in Dynamic Scenes. IEEE Transactions on Visualization and Computer Graphics, 2020, 26(5): 1902-1911.
11. **Zhiming Hu**, Sheng Li, Meng Gai. Temporal continuity of visual attention for future gaze prediction in immersive virtual reality. Virtual Reality & Intelligent Hardware, 2020, 2(2): 142-152.
12. **Zhiming Hu**, Congyi Zhang, Sheng Li, Guoping Wang, Dinesh Manocha. SGaze: A Data-Driven Eye-Head Coordination Model for Realtime Gaze Prediction. IEEE Transactions on Visualization and Computer Graphics, 2019, 25(5): 2002-2010.