Zhiming Hu

Curriculum Vitae

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

Research Interests

My research interests include virtual reality, human-computer interaction, eye tracking, and human-centred artificial intelligence. The long-term research goal is to develop a human-centred intelligent interactive system that can accurately model human behaviours, e.g. human eye movements and human body movements, in activities of daily living.

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 & Honours

○ Best Doctoral Student Paper Award Nominees at INTERACT 2023, 2023
○ SimTech Postdoctoral Fellowship, 2022
○ National Scholarship (top 2%), 2021
○ TVCG Best Journal Award Nominees at IEEE VR 2021 (top 2%, first time for Chinese researchers), 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: TVCG, IMWUT, TiiS, T-MM, IJHCI, MTAP
- Conferences: SIGGRAPH Asia, CVPR, ICCV, ECCV, CHI, UIST, IEEE VR, ISMAR, ETRA

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

Invited Talks
- Towards Human-centred Artificial Intelligence. Nanjing University 11th Chengyao Youth Forum, China, December, 2023.
- Towards Human-aware Intelligent User Interfaces. Peking University Fifth Youth Forum on the Next Generation Computer Sciences, China, December, 2023.
- Towards the Coordination of Eye, Body and Context in Daily Activities. Beijing Institute of Technology 10th Teli Forum, China, Hosted by Prof. Guoren Wang, November, 2023.
- The Coordination of Digital Humans. Peking University Career Talk on Computer Science, China, November, 2022.
- 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

Published

1. Chuhan Jiao, **Zhiming Hu***, Mihai Bâce, 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.

   Best Doctoral Student Paper Award Nominees

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 Award Nominees

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.

Submitted

1. Chuhan Jiao, Yao Wang, Guanhua Zhang, **Zhiming Hu**, Andreas Bulling. DiffEM: A Diffusion Model of Eye Movement Generation for 360-degree Images. under review, 2023.

2. Mayar Elfares, Pascal Reisert, **Zhiming Hu**, Ralf Küsters, Andreas Bulling. PrivatEyes: Appearance-based Gaze Estimation Using Federated Secure Multi-Party Computation. under

review, 2023.

3. Yao Wang, Yue Jiang, **Zhiming Hu**, Constantin Ruhdorfer, Mihai Bâce, Andreas Bulling. VisRecall++: Analysing and Predicting Visualisation Recallability from Gaze Bahaviour. under review, 2023.

4. Haodong Yan, **Zhiming Hu**, Syn Schmitt, Andreas Bulling. GazeMoDiff: Gaze-guided Diffusion Model for Stochastic Human Motion Prediction. under review, 2023.

5. **Zhiming Hu**, Jiahui Xu, Syn Schmitt, Andreas Bulling. Pose2Gaze: Generating Realistic Human Gaze Behaviour from Full-body Poses using an Eye-body Coordination Model, under review, 2023.

6. Yao Wang, Weitian Wang, Abdullah Abdelhafez, Mayar Elfares, **Zhiming Hu**, Mihai Bâce, Andreas Bulling. SalChartQA: Question-driven Saliency on Information Visualisations. under review, 2023.

7. Guanhua Zhang, **Zhiming Hu**, Mihai Bâce, Andreas Bulling. Mouse2Vec: Learning Reusable Semantic Representations of Mouse Behaviour. under review, 2023.

8. **Zhiming Hu**, Syn Schmitt, Daniel Haeufle, and Andreas Bulling. GazeMotion: Gaze-Guided Human Motion Forecasting. under review, 2023.