Danhua Zhang

PhD Student, Mixed Reality, HCI, and Computer Graphics

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Education

University of Minnesota Twin Cities, MN, USA — *2019 - present*
Ph.D. Computer Science

University of Minnesota Twin Cities, MN, USA — *2017 - 2019*
M.S., Computer Science

Sun Yat-sen University, Guangzhou, China — *2013 - 2017*
B.S., Information and Computing Science

Technical Skills

Programming Languages: C/C++, C#, Processing, R script
Programming Software: MS Visual Studio, Matlab, R Studio
Libraries: OpenGL, OpenVR, VRPN, Photon PUN 2
Game Engine: Unity
3D Modeling: Character Creator 3, iClone 7, Maya, Blender
Digital Art: PaintTool SAI, Davinci Resolve, Adobe PhotoShop, After Effects, Premier

Publications

Danhua Zhang, Malik Khadar, Brett W Schumacher, Madhava Raveendra, Sam Adeniyi, Fei Wu, Sahar Aseeri, and Evan Suma Rosenberg. "COVID-Vision: A Virtual Reality Experience to Encourage Mindfulness of Social Distancing in Public Spaces." *In 2021 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW). IEEE.* DOI:10.1109/VRW52623.2021.00231

Awards & Hornors

Awarded the **Honorable Mention of MCM**, 2016, COMAP
Awarded the **3rd Class Scholarship**, 2016, SYSU
Awarded the **3rd Class Scholarship**, 2015, SYSU

Work Experience

CSCI 4511W Introduction to Artificial Intelligence — *Fall 2022*
Teaching Assistant, UMN, USA

- Holding office hours for students' questions and grading assignments and projects

Research Experience

Nurse Training: Virtual Simulation — *Sept. 2021 - Present*
Research Assistant, UMN, USA

- Collaborating with nursing experts to conduct a formative study to assess the feasibility and a follow-up study to evaluate the effectiveness and user acceptance
- Designed the interview questions and interviewed participants in person for their feedback on the designed training scenarios
- Developed a VR project of several nurse training scenarios
- Customized the patient avatar model, including appearance, voice and animation
- Built several 3D medical device models in Blender

Understanding Communication Technology and Social Behavior *Sept. 2020 - Present*
Research Assistant, UMN, USA

- Collaborating with psychologists to run the longitudinal experiment and develop customized software for the study
- Trained undergraduate research assistants to use the developed software
- Developed a multi-user VR application for mobile devices, supporting voice synchronization
- Developed a multi-user 3D application for Windows & MacOS to control the VR users

Motion Sickness: Postural Sway Analysis in VR — *Sept. 2019 - May. 2020*
Research Assistant, UMN, USA

- Collaborated with kinesiologists to conduct a study to analyze the pattern of postural sway data when users' motion sickness level change
- Developed a software collecting data from a balance board for postural sway measurement
- Developed a software capable of collecting data from most commercial VR devices

Contest Projects

COVID Vision: Mind Social Distances *Dec. 2020 - March 2021*
IEEE VR 3DUI Contest

- Developed the multi-user VR application for VR devices on PC
- Led the team to collaborate and organize the modules implemented by each member
- Provided the visualization, interaction and feedback method
- Presented the publication in IEEE VR Conference 2021

A Hot Bath: Optimization *Jan. - Feb. 2016*
The Mathematical Contest in Modeling - Problem A

- Learned thermodynamics and applied differential equation to dynamically describe the bath water temperature
- Used nonlinear programming for the optimization model
- Submitted a paper as a group of three

Relevant Completed Courses

CSCI 8980 Special Topics: Game Engine Technologies, fall 2019, UMN, USA
CSCI 5609 Visualization, spring 2019, UMN, USA
CSCI 8980 Special Topics: Immersive User Interfaces, fall 2018, UMN, USA
CSCI 5611 Animation & Planning in Games, spring 2018, UMN, USA
ARTS 3770 Animation, spring 2018, UMN, USA
CSCI 5607 Fundamentals of Computer Graphics 1, fall 2017, UMN, USA

Research Interests

Virtual Reality (VR) and Augmented Reality (AR)
3D user interface design
Human-Computer Interaction (HCI)
Computer Graphics and Animation

Languages

Chinese - Mandarin: Native speaker
English: Advanced

Reference Letters

Prof. Evan Suma Rosenberg (Ph.D. advisor): Associate Professor, UMN
Email: suma@umn.edu