

CISC 499 PROJECTS IN THE EQUIS LAB

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These projects in human-computer interaction and game design involve software development in Unity. They are most suitable for people who like designing and programming interactive software with a strong focus on fun and usability. Experience in Unity is required, such as obtained from taking CISC 226 (Game Design). Experience in human-computer interaction is strongly recommended, such as from taking CISC 325 (Human-Computer Interaction.)

PROJECT 1: HUMAN-GUIDED TELEPRESENCE

Air travel is a significant source of greenhouse gas emissions. Our ultimate goal is to reduce the need for air travel by helping people take part in events at a distance in a far more immersive way than current teleconferencing applications provide. Applications of this technology include participation at conferences, visits to tourist venues, and guided tours. These applications require people to move about in a space, which is supported poorly by existing desktop conferencing tools.

Our vision is that groups of remote attendees can participate in a local event using a local human as a proxy for their own presence. The local human uses a 360° camera to provide a view of the scene. Remote participants can see the local scene anchored from the position of the local human. The use of the 360° camera allows remote participants to look around, maintaining an immersive view of the local scene. For example, in a guided tour of a historic site, the tour guide would move through the site, allowing remote users to see it using VR headsets.

Up to three CISC 499 projects are available within this topic area.

PROJECT 2: EXERGAMING

Exergames merge the fun of video games with physical activity. For example, our “Thighrim” and “Calf-Life” games were versions of the popular games “Skyrim” and “Half-Life” that could be played while using a stationary bicycle. Some traditional forms of interaction with games need to be rethought for use while doing exercise. For example, traversing dialogue trees in a role-playing game does not naturally lend itself to high action activity. Some forms of interaction are hard while exercising: for example, aiming in a first-person shooter game is hard while out of breath. The goal of this project will be to design, implement and test new forms of exercise-based interaction for traditional interaction techniques in games that players will find fun and exhilarating. Up to two CISC 499 projects are available.