

Bauhaus-Universität Weimar  
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# Jumping for Guided Navigation in Immersive Virtual Environments

Master's Thesis

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# Declaration of Authorship

I hereby declare that I have written this thesis without the use of documents and aids other than those stated in the references, that I have mentioned all sources used and that I have cited them correctly according to established academic citation rules, and that the topic or parts of it are not already the object of any work or examination of another study programme.

Date

Ramsha Saad Thaniana

# Abstract

This is the abstract...

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# 1 | Introduction

Many navigation techniques exist for both Desktop and Immersive Virtual Environments (VE) that define how users move around these VEs. The goals of navigation are to move towards a target location and orientation to explore the environment. Navigation should facilitate way finding in the VE, which means allowing the user to know where they are, where they will go next and how they will get there. This also means that the user should have a good perception of the VE and path that they took.

Navigation techniques can be active such that the user is controlling their own movement; passive such that the user is being automatically moved around the environment; or they can be a mix of active and passive. Navigation techniques also have to ensure that there is minimal motion sickness, sufficient environmental awareness which means that while navigating the user knows where they are in an environment compared to where they were before and that it is easy to reach important places in the environment. Two common metaphors for navigation are steering and teleportation.

Steering navigation is a technique where there is continuous movement in a direction indicated either by gaze, pointing or use of a physical device. In some cases an additional action can be added to specify the velocity. With steering navigation spatial awareness is generally good but can cause motion sickness. Teleportation navigation is a target based metaphor for where the goal position is specified discretely by pointing or choosing a location and orientation to be moved towards. This form of navigation minimises motion sickness but results in less environmental awareness as compared to the steering metaphor.

## **2 | Related Work**

This is related work with an example citation [1]...

### **2.1 River Metaphor**

### **2.2 Exploration Assistance**

### **2.3 Jumping Navigation**

### **2.4 Conclusion**

## **3 | Guided Navigation Scenarios**

## **4 | Automated Jumping for Guided Navigation**



## **5 | Comprehensibility of Automated Jumps**

## **6 | Design of the User Study**

## **7 | Procedure of the User Study**

## 8 | Evaluation of the User Study

## 9 | Conclusion and Future Work

This is the conclusion...

# Bibliography

- [1] A. Kulik, A. Kunert, S. Beck, R. Reichel, R. Blach, A. Zink, and B. Froehlich, "C1x6: A Stereoscopic Six-user Display for Co-located Collaboration in Shared Virtual Environments," in *Proceedings of the 2011 SIGGRAPH Asia Conference, SA '11*, (New York, NY, USA), pp. 188:1–188:12, ACM, 2011.

# A | Appendix

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