

Bauhaus-Universität Weimar  
Faculty of Media  
Degree Programme Human-Computer Interaction

# Jumping for Guided Navigation in Immersive Virtual Environments

Master's Thesis

Ramsha Saad Thaniana  
born on 07<sup>th</sup> October 1996 in Karachi, Pakistan

Matriculation number: 121766

**First referee:** Prof. Dr. Bernd Fröhlich  
**Second referee:** Jun.-Prof. Dr. Jan Ehlers

Submission date: 08<sup>th</sup> November 2021

# 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...

# Contents

1	Introduction	1
2	Related Work	1
2.1	River Metaphor . . . . .	1
2.2	Exploration Assistance . . . . .	1
2.3	Jumping Navigation . . . . .	1
2.4	Conclusion . . . . .	1
3	Guided Navigation Scenarios	1
4	Automated Jumping for Guided Navigation	1
5	Comprehensibility of Automated Jumps	1
6	Design of the User Study	1
7	Procedure of the User Study	1
8	Evaluation of the User Study	1
9	Conclusion and Future Work	2
A	Appendix	4

# 1 | Introduction

Many navigation techniques exist for both Desktop and Immersive Virtual Environments (VE) that define how users move around these VEs. They 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 main categories of navigation techniques are Steering and Teleportation.

Steering navigation is

## **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

This is the appendix...