

# Mixed Reality Media: Integration of live video feed in 3D environments

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Martin Zier

*June 27, 2017*  
Version: Initial Drafting



Beuth University of Applied Sciences

# CleanThesis

Department VI: Computer Sciences and Media

Bachelor Thesis

## Mixed Reality Media: Integration of live video feed in 3D environments

Martin Zier

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| <i>1. Reviewer</i> | <b>Kristian Hildebrand</b><br>Department VI: Computer Sciences and Media<br>Beuth University of Applied Sciences         |
| <i>2. Reviewer</i> | <b>Prof. Dr.-Ing. René Görlich</b><br>Department VI: Computer Sciences and Media<br>Beuth University of Applied Sciences |
| <i>Supervisors</i> | Kristian Hildebrand and Joachim Quantz   |

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Department VI: Computer Sciences and Media

Luxemburger Straße 10

13353 Berlin

# Abstract

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# Acknowledgement

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# Introduction

” *Top 10 Reasons why you won’t believe this crazy quote.*

— **Buzzfeed**

(Nothing notable, yet always there)

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## 1.1 Overview

The idea of Virtual Reality (VR) and Head Mounted Displays (HMDs) stems from a cultural need to switch into roles of foreign worlds. Through the advancing development of hard- and software over the last decades emerges a medium which has unmatched immersion and creates an unique, transforming experience into any imaginable environment.

VR and HMDs are now advanced enough for consumer markets - but it stumbles at communicating the experience. Without having ever put on a VR-Headset it is nearly impossible to understand - or even imagine - what the virtual reality experience means. Any observer of Virtual Reality, usually done by showing what the VR actor is seeing, will not be able to get an understand of the importance and shift of reality perception without wearing the headset himself.

Showing the video output from a HMD as marketing material is contradicting with classic motion video productions. There is even only one famous example where the perspective of a First Person Shooter is reenacted, which was in the overwhelmingly negatively received Doom (2005) movie.

The VR industry, including but not limited to game developers, exhibition creators and creative studios is in need of better communication of their products that includes more than the current headset wearer and allows for a similar, adapted and immersive experience.

The currently method is called "Mixed Reality" (MR) and uses an external camera with the same tracking hardware of the headset to produce a video signal that shows the real world actor with the environment around him. There are currently three main ways of producing MR footage - where as only one variant allows for live compositing with highly accurate imaging results.

## 1.2 Motivation

My early teenage years started around the time where digitalization and global interconnectivity begun and broadband Internet became commercially available. Suddenly remote multiplayer games, unlimited image sharing - and yes, music

sharing, too -, Java-Applets, Flash, HTML framesets and "Marquee" CSS emerged in that medium. 3D Acceleration became a de-facto standard and even simple office PCs got weak, but dedicated graphics processing units built in. The mass of pixels by increasing the resolution of displays was basically a yearly iteration in greater, better, smaller and brighter.

## 1.3 Problem Statement

Here is the actual problem in human readable words.

## 1.4 Relevance & Challenges

## 1.5 Results

Result stuff

## 1.6 Thesis Structure



## Related Work

” *A picture is worth a thousand words. An interface is worth a thousand pictures.*

— **Ben Shneiderman**  
(Professor for Computer Science)

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### 2.1 Related Work Section 1

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## 2.2 Related Work Section 2

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## 2.3 Related Work Section 3

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## 2.4 Conclusion

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# System

” *Innovation distinguishes between a leader and a follower.*

— **Steve Jobs**  
(CEO Apple Inc.)

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## 3.1 System Section 1

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**Fig. 3.1:** Figure example: (a) example part one, (c) example part two; (c) example part three

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## 3.2 System Section 2

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**Fig. 3.2:** Another Figure example: (a) example part one, (c) example part two; (c) example part three

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### 3.3 System Section 3

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And after the second paragraph follows the third paragraph. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

After this fourth paragraph, we start a new paragraph sequence. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

## 3.4 Conclusion

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

This is the second paragraph. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

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## Colophon

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# Declaration

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*Berlin, June 27, 2017*

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Martin Zier

