

Mobile Visualisierung von Netzwerkstrukturen in Augmented-Reality-Umgebungen

Sinthujan Thanabalasingam

4. Januar 2017
Version: Erstentwurf



Technische Universität Dresden

Fakultät Informatik
Institut für Software- und Multimediatechnik
Professur für Multimedia-Technologie

Bachelorarbeit

Mobile Visualisierung von Netzwerkstrukturen in Augmented-Reality-Umgebungen



Sinthujan Thanabalasingam

- | | |
|---------------------|--|
| <i>1. Gutachter</i> | Jane Doe
Fakultät Informatik
Technische Universität Dresden |
| <i>2. Gutachter</i> | John Doe
Fakultät Informatik
Technische Universität Dresden |
| <i>Betreuer</i> | Prof. Dr.-Ing. Raimund Dachzelt und Wolfgang Büschel (M.Sc.) |

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Korrektur: Jane Doe und John Doe

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Professur für Multimedia-Technologie

Institut für Software- und Multimediatechnik

Fakultät Informatik

Nöthnitzer Str. 46

01187 Dresden

Abstract

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Abstract (different language)

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Acknowledgement

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Inhaltsverzeichnis

1	Einleitung	1
1.1	Motivation der Arbeit und Problemstellung	2
1.2	Abgrenzung zu anderen Arbeiten	2
1.3	Struktur der Arbeit	3
2	State of the Art	5
2.1	Augmented Reality (AR)	5
2.2	Mobile Augmented Reality (MAR)	6
2.2.1	Hintergrund	6
2.2.2	Stand der Technik	6
2.3	Informationsnetze	8
2.4	Visualisierung von Informationsnetzen	9
2.4.1	Informationsnetzanalyse	9
2.4.2	Eigenschaften guter Visualisierung	9
2.4.3	Strategien zur Vermeidung von Clutter	10
2.4.4	Bestehende Ansätze im Bereich AR	10
3	Anforderungsanalyse und Anwendungsgebiete	11
3.1	Augmented Reality und Wahrnehmung	11
3.2	Technische Limitationen	11
3.3	Potentielle Anwendungsgebiete	11
4	Konzepte	13
4.1	Basiskonzept	13
4.2	Motion Tracking	14
4.3	Visualisierung	16
4.3.1	Graphmodelle	17
4.3.2	Auswahl geeigneter Strategien	17
4.3.3	Proximity-based Level of Detail	17
4.3.4	2D vs 3D	17
4.3.5	Gerichtete Graphen	17
4.3.6	Multivariate Daten	17
4.3.7	Tiefenwahrnehmung	18
4.4	Diskussion	18

5	Prototyp RAIN	19
5.1	Toolchain	19
5.1.1	Hardware	19
5.1.2	Software	19
5.2	Umgesetzte Konzepte	21
6	Fazit	23
6.1	Unbeleuchtete Aspekte	23
6.2	Verbesserungsvorschläge	24
6.3	Aussicht	25
7	Zusammenfassung	27
A	Example Appendix	29
A.1	Appendix Section 1	29
A.2	Appendix Section 2	29

Einleitung

“ You can’t do better design with a computer, but
you can speed up your work enormously.

— **Wim Crouwel**

(Graphic designer and typographer)

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1.1 Motivation der Arbeit und Problemstellung

Ricardo Langner

Alfred-Schrapel-Str. 7

01307 Dresden

Germany

1.2 Abgrenzung zu anderen Arbeiten

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[Jurgens:2000; Jurgens:1995; Miede:2011; Kohm:2011; Apple:keynote:2010; Apple:numbers:2010; Apple:pages:2010]

1.3 Struktur der Arbeit

?? ??

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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State of the Art

“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 Augmented Reality (AR)

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2.2 Mobile Augmented Reality (MAR)

2.2.1 Hintergrund

2.2.2 Stand der Technik

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2.3 Informationsnetze

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2.4 Visualisierung von Informationsnetzen

2.4.1 Informationsnetzanalyse

2.4.2 Eigenschaften guter Visualisierung

2.4.3 Strategien zur Vermeidung von Clutter

2.4.4 Bestehende Ansätze im Bereich AR

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.

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Anforderungsanalyse und Anwendungsgebiete

3.1 Augmented Reality und Wahrnehmung

3.2 Technische Limitationen

3.3 Potentielle Anwendungsgebiete

Konzepte

“Users do not care about what is inside the box, as long as the box does what they need done.

— **Jef Raskin**

about Human Computer Interfaces

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4.1 Basiskonzept

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4.2 Motion Tracking

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4.3 Visualisierung

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4.3.1 Graphmodelle

4.3.2 Auswahl geeigneter Strategien

4.3.3 Proximity-based Level of Detail

4.3.4 2D vs 3D

4.3.5 Gerichtete Graphen

4.3.6 Multivariate Daten

4.3.7 Tiefenwahrnehmung

4.4 Diskussion

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.

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Prototyp RAIN

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

— **Steve Jobs**
(CEO Apple Inc.)

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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5.1 Toolchain

5.1.1 Hardware

5.1.2 Software

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

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Abb. 5.1.: Figure example: (a) example part one, (c) example part two; (c) example part three

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5.2 Umgesetzte Konzepte

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. 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.



Abb. 5.2.: Another Figure example: (a) example part one, (c) example part two; (c) example part three

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Fazit

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6.1 Unbeleuchtete Aspekte

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

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6.2 Verbesserungsvorschläge

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6.3 Aussicht

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Zusammenfassung

7

Example Appendix

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.

A.1 Appendix Section 1

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Alpha	Beta	Gamma
0	1	2
3	4	5

Tab. A.1.: This is a caption text.

A.2 Appendix Section 2

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

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Alpha	Beta	Gamma
0	1	2
3	4	5

Tab. A.2.: This is a caption text.

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.

List of Figures

5.1	Figure example: <i>(a)</i> example part one, <i>(c)</i> example part two; <i>(c)</i> example part three	20
5.2	Another Figure example: <i>(a)</i> example part one, <i>(c)</i> example part two; <i>(c)</i> example part three	21

List of Tables

A.1	This is a caption text.	29
A.2	This is a caption text.	30

Colophon

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Declaration

You can put your declaration here, to declare that you have completed your work solely and only with the help of the references you mentioned.

Dresden, 4. Januar 2017

Sinthujan Thanabalasingam

