



**UNIVERSITÄT
BAYREUTH**

Fakultät Mathematik, Physik, Informatik
Institut für Informatik
Lehrstuhl für Serious Games
Prof. Dr. Jörg Müller

Big Master Project

The Haptic Printer

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September 27, 2021
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Abstract

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Introduction

” *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 Postcards: My Address

Ricardo Langner

Alfred-Schrapel-Str. 7

01307 Dresden

Germany

1.2 Motivation and Problem Statement

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[Jür00; Jür95; Mie11a; KJUM11; App10a; App10b; App10c]

1.3 Results

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1.3.1 Some References

[Fre10; Mie11b]

1.4 Thesis Structure

Chapter 2

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Chapter 3

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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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2.4 Conclusion

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Features

“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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3.1 Concepts Section 1

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3.2 Concepts Section 2

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3.3 Concepts Section 3

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3.4 Conclusion

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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Architecture

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

— **Steve Jobs**
(CEO Apple Inc.)

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4.1 architecture Section 1

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

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Fig. 4.1: Figure example: (a) example part one, (c) example part two; (c) example part three

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.

4.2 architecture Section 2

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

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Fig. 4.2: Another Figure example: (a) example part one, (c) example part two; (c) example part three

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.

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4.3 architecture Section 3

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Validation

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Bayreuth, September 27, 2021

The Haptic Printer

Conclusion

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The Haptic Printer

Future Work

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Bibliography

- [App10a] Apple Inc. *Keynote '09 User Guide*. Apple Inc., 2010 (cit. on p. 3).
- [App10b] Apple Inc. *Numbers '09 User Guide*. Apple Inc., 2010 (cit. on p. 3).
- [App10c] Apple Inc. *Pages '09 User Guide*. Apple Inc., 2010 (cit. on p. 3).
- [Jür00] Manuela Jürgens. *LaTeX: eine Einführung und ein bisschen mehr*. FernUniversität Gesamthochschule in Hagen, 2000 (cit. on p. 3).
- [Jür95] Manuela Jürgens. *LaTeX: Fortgeschrittene Anwendungen*. FernUniversität Gesamthochschule in Hagen, 1995 (cit. on p. 3).
- [KJUM11] Markus Kohm and Jens-Uwe-Morawski. *KOMA-Script: Die Anleitung*. 2011 (cit. on p. 3).
- [Mie11a] André Miede. *A Classic Thesis Style: An Homage to The Elements of Typographic Style*. 2011 (cit. on p. 3).

Websites

- [Fre10] Free Software Foundation, Inc. *GNU General Public License*. 2010. URL: <http://www.gnu.org/licenses/gpl.html> (visited on May 27, 2011) (cit. on p. 3).
- [Mie11b] André Miede. *A Classic Thesis Style by André Miede*. 2011. URL: <http://www.miede.de/index.php?page=classicthesis> (visited on May 27, 2011) (cit. on p. 3).

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Declaration

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