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FH Vorarlberg
University of Applied Sciences

TITLE

SUBTITLE

MASTER THESIS
SUBMITTED IN FULFILLMENT OF THE DEGREE

MASTER OF SCIENCE IN ENGINEERING, MSc

UNIVERSITY OF APPLIED SCIENCES VORARLBERG
MASTER'S IN MECHATRONICS

SUPPORT UNIVERSITY OF APPLIED SCIENCES VORARLBERG

TITLE SUPERVISOR SURNAME SUPERVISOR NAME TITLE

SUPPORT COMPANY NAME GMBH

SUPERVISORCOMPANYNAME

HANDED IN BY

TITLE SURNAME NAME TITLE

MATRIKELNUMMER

DORNBIRN, 15.03.2018

Dedication

[Optional and not common. If included then use a neutral spelling style.]

Kurzreferat

Deutscher TITEL

Ein Kurzreferat macht die Relevanz der Arbeit sowie die innovativen Gedankengänge ersichtlich. Alleiniges Ziel ist es, in jeweils einem Absatz einen gerafften Überblick der Arbeit zu geben, so dass die Nutzer/innen entscheiden können, ob die vorliegende Arbeit für das eigene Forschungsvorhaben relevant ist oder nicht. Dementsprechend müssen darin die zentralen Abschnitte in neutraler, nicht wertender Perspektive beschrieben werden, vergleichbar einem Text über den Text von einem imaginierten Dritten.

Das Abstract muss für sich alleine verständlich sein. Es sollte zudem die zentralen Schlagwörter, die das Thema der Arbeit treffend umreißen, enthalten, um eine Indexierung in einer bibliographischen Referenzdatei zu erleichtern. Der Umfang von 1200 Anschlägen (d.h. Zeichen mit Leerzeichen; ca. 20 Zeilen) sollte nicht überschritten werden.

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.

Abstract

English TITLE

The abstract must be relevant to the topic and show the innovative ideas of the work. It should summarize your research in order to inform the reader, and give him/her the choice of whether it should/not be selected for his/her work. It should be a factual and impartial presentation of the main ideas.

The abstract should be only one paragraph long. It must provide the required information so that it is not necessary to read the other parts or even the complete work. It must also include key words to outline the subject for indexing and for bibliographic reference.

The length should not be more than 1200 characters (i.e. symbols and spaces; ca. 20 lines).

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.

Preface / Acknowledgement

[Optional.]

In a preface / acknowledgement you could mention your personal link with the topic, e.g.:

- The personal reason for the choice of this particular topic.

- The personal connection with the topic.

- Your own point of view.

- Your personal statement.

- An acknowledgement is often included at the end of the preface.

Contents

List of Figures

List of Tables

Listings

1 Heading on Level 0 (chapter)

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. $\sin^2(\alpha) + \cos^2(\beta) = 1$. If you read this text, you will get no information $E = mc^2$. 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. $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$. This text should contain all letters of the alphabet and it should be written in of the original language. $\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$. There is no need for special content, but the length of words should match the language. $a\sqrt[n]{b} = \sqrt[n]{a^n b}$.

1.1 Heading on Level 1 (section)

Hello, here is some text without a meaning. $d\Omega = \sin\vartheta d\vartheta d\varphi$. 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. $\sin^2(\alpha) + \cos^2(\beta) = 1$. This text should contain all letters of the alphabet and it should be written in of the original language $E = mc^2$. There is no need for special content, but the length of words should match the language. $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$.

1.1.1 Heading on Level 2 (subsection)

Hello, here is some text without a meaning. $\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$. This text should show what a printed text will look like at this place. $a\sqrt[n]{b} = \sqrt[n]{a^n b}$. If you read this text, you will get no information. $d\Omega = \sin\vartheta d\vartheta d\varphi$. 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. $\sin^2(\alpha) + \cos^2(\beta) = 1$.

Heading on Level 3 (subsubsection)

Hello, here is some text without a meaning $E = mc^2$. This text should show what a printed text will look like at this place. $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$. If you read this text, you will get no information. $\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$. 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. $a\sqrt[n]{b} = \sqrt[n]{a^n b}$. This text should contain all letters of the alphabet and it should be written in of the original language. $d\Omega = \sin \vartheta d\vartheta d\varphi$. There is no need for special content, but the length of words should match the language.

Heading on Level 4 (paragraph)   Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. $\sin^2(\alpha) + \cos^2(\beta) = 1$. If you read this text, you will get no information $E = mc^2$. 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. $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$. This text should contain all letters of the alphabet and it should be written in of the original language. $\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$. There is no need for special content, but the length of words should match the language. $a\sqrt[n]{b} = \sqrt[n]{a^n b}$.

1.2 Lists

1.2.1 Example for list (itemize)

- First item in a list
- Second item in a list
- Third item in a list
- Fourth item in a list
- Fifth item in a list

Example for list (4*itemize)

- First item in a list
  - First item in a list
    * First item in a list

- · First item in a list
  - · Second item in a list
  - ∗ Second item in a list
  - − Second item in a list
- • Second item in a list

1.2.2 Example for list (enumerate)

1. First item in a list
2. Second item in a list
3. Third item in a list
4. Fourth item in a list
5. Fifth item in a list

Example for list (4*enumerate)

1. First item in a list
   a) First item in a list
      i. First item in a list
         A. First item in a list
         B. Second item in a list
      ii. Second item in a list
   b) Second item in a list
2. Second item in a list

1.2.3 Example for list (description)

First item in a list

Second item in a list

Third item in a list

Fourth item in a list

Fifth item in a list

Example for list (4*description)

First item in a list

    First item in a list

        First item in a list

            First item in a list

            Second item in a list

        Second item in a list

    Second item in a list

Second item in a list

2 Mathemodus

$$\det(\lambda \cdot \mathbb{1} - A) = 0 \quad \underbrace{\longrightarrow}_{\substack{\text{Zustands-}\\\text{rückführung}}} \quad \det\left[\lambda \cdot \mathbb{1} - (A - b \cdot k)\right] = 0 \tag{2.1}$$

$$\sin(x)^2 + \cos(x)^2 = 1 \tag{2.2}$$

Ich bin eine super Referenzierung: Equation (2.1). Oder noch besser wenn auf mehrere Gleichungen referenziert werden will: Equations (2.1) and (2.2).

3 BiB & Acronyme

- Dies ist eine Qullenangabe: (Vgl. 802.1Q-2014 2014, S.220-224).

- Dies ist eine Credit Based Traffic Shaping (CBS).

- Zweite Verwendung von einem Acronym: CBS.

- Dies ist eine Fußzeile[1].

- Mandl, Bakomenko, and Weiß (2010, S.2-9) nachgeschlagen werden.

So kann direkt Zitiert werden:

"*ich bin ein direktes Zitat*" Broster and Burns 2001

Acronym Tests: " Frames per Second (FPSs) FPSs" für Plural.

---

[1] Das ISO/OSI Model kann in Mandl, Bakomenko, and Weiß 2010, S.2-9 nachgeschlagen werden.

Time Sensitive Networking (TSN) Joint Test Action Group (JTAG) Static random-access memory (SRAM) Simultaneous Localization and Mapping (SLAM)

Hello, here is some text without a meaning. $d\Omega = \sin\vartheta d\vartheta d\varphi$. 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. $\sin^2(\alpha) + \cos^2(\beta) = 1$. This text should contain all letters of the alphabet and it should be written in of the original language $E = mc^2$. There is no need for special content, but the length of words should match the language. $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$.

4 Bilder

In Figure 4.1 ist ein Beispiel einer Abbildung dargestellt.
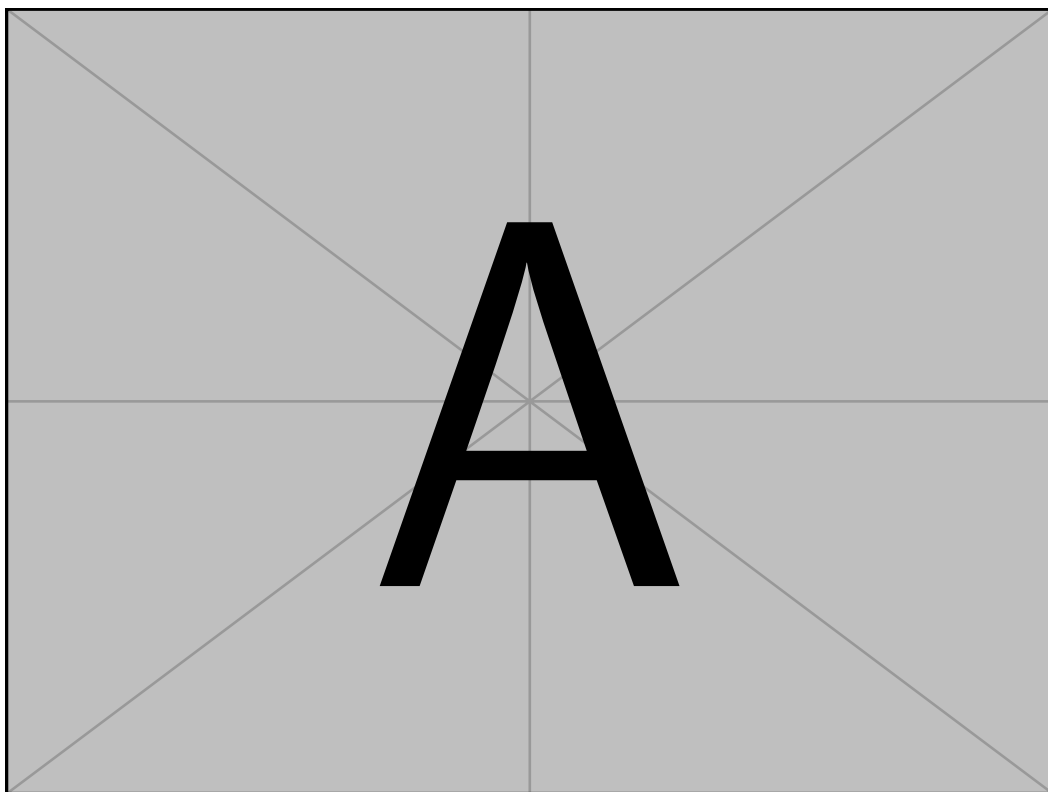
Figure 4.1: ich bin die Unterschrift
Source: Quelle

In Figure 4.2a (oder mit Abkürzung Figure 4.2a) ist ein Beispiel einer Abbildung mit zwei Bildern dargestellt. Figure 4.2 referenziert wiederum auf beide Bilder.
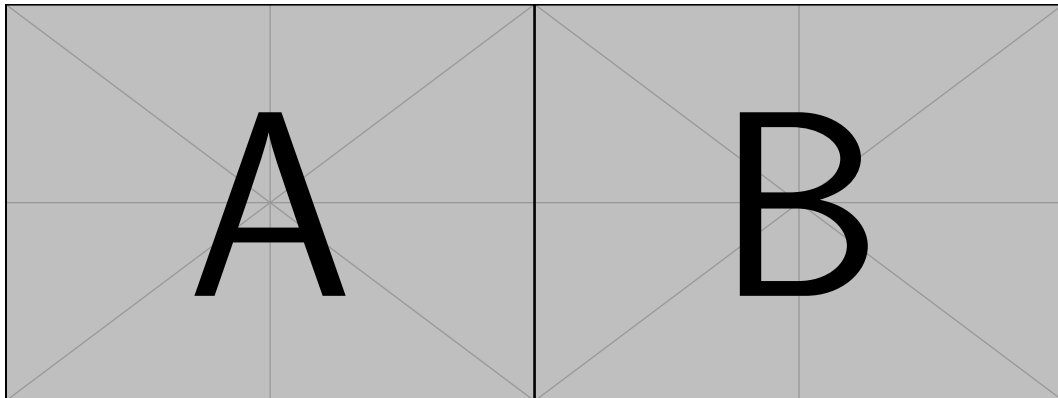
(a) Bild A   (b) Bild B

Figure 4.2: Bildunterschrift für beide Bilder
Source: Dorner 2010

4.1 Spezial

Figure 4.3: Kausalisierter Bondgraph
Source: eigene Ausarbeitung

Figure 4.4: Schaltkreis: Escon 50/5 Controller für Polverschiebung
Source: eigene Ausarbeitung
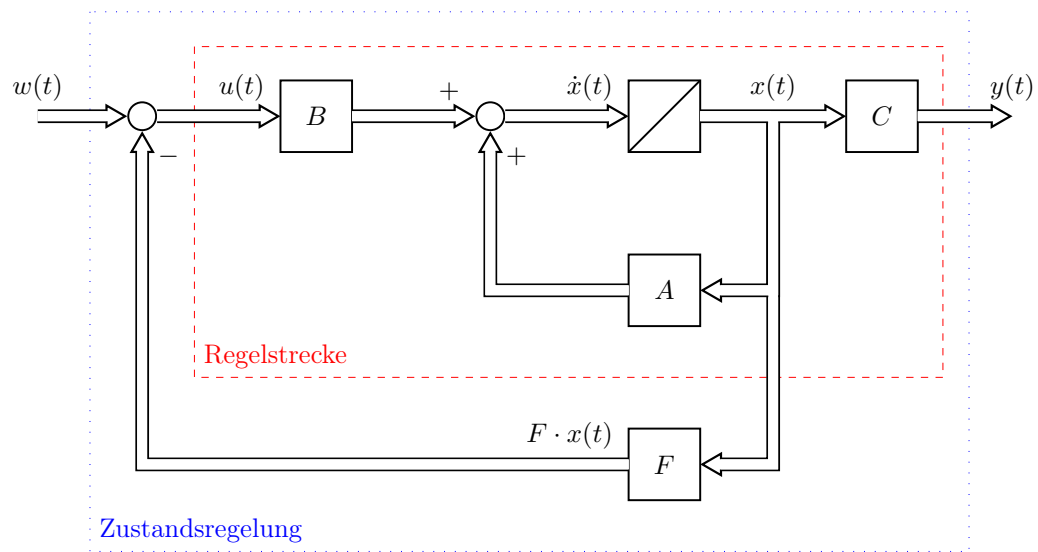
Figure 4.5: Zustandsregler mit Rückkopplungsverstärkungsmatrix f
Source: eigene Ausarbeitung

5 Tabellen

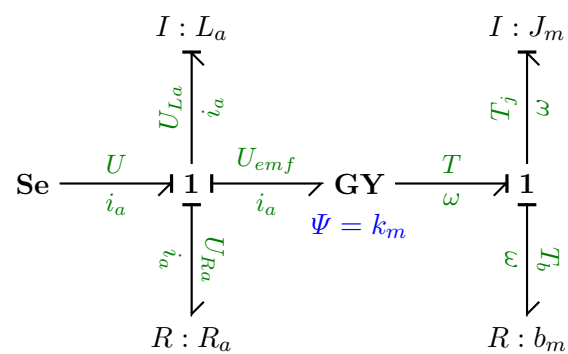| Switch Typ	load	n	min	max	$\tilde{x}$	$\bar{x}$	σ^2	σ
Akro 6/0	nein	1199602	145.12	151.32	147.92	147.91	1.12	1.06
Akro 6/0	ja	1199382	145.12	151.40	147.88	147.89	1.13	1.06

Table 5.1: Tabellen Unterschrift
Source: eigene Ausarbeitung

Typ	Eigenschaften
Table 2	"Fußnote"[a]
Table 2	Fußnote[b]

Table 5.2: Fußnoten in einer Tabelle
Source: eigene Ausarbeitun

[a] Diese Fußnote mit "\tnote" nach "\enquote" Umgebung verwenden
[b] Ich bin die Fußnote zu b, für normalen Text.

6 Listing

```
1  for i:=maxint to 0 do
2  begin
3      { comment }
4  end;
```

Listing 6.1: example

Line 3 shows a comment. Die Escape Operatoren können unter "./sty/Listings.sty" geändert werden.

Acronyms

CBS   Credit Based Traffic Shaping. 6

FPS   Frame per Second. 6

JTAG   Joint Test Action Group. 7

SLAM   Simultaneous Localization and Mapping. 7
SRAM   Static random-access memory. 7

TSN   Time Sensitive Networking. 7

Bibliography

Broster, Ian and Burns, Alan (2001): *The Babbling Idiot in Event-triggered Real-time Systems*. Department of Computer Science. University of York, UK (cit. on p. 6).

Dorner, Marcel (2010): *Ethernet-Testprogramm*. Bachmann electronic GmbH. Feldkirch, Österreich (cit. on p. 9).

Mandl, Peter; Bakomenko, Andreas, and Weiß, Johannes (2010): *Grundkurs Datenkommunikation: TCP/IP-basierte Kommunikation: Grundlagen, Konzepte und Standards*. Wiesbaden: Vieweg+Teubner. Chap. Einführung in Referenzmodelle und Protokolle (cit. on p. 6).

IEEE

802.1Q-2014 (2014): *Bridges and Bridged Networks*. Draft 2.2. Institute of Electrical and Electronics Engineers, Inc. URL: http://www.ieee802.org/1/pages/802.1Q-2014.html (visited on 04/29/2016) (cit. on p. 6).

Appendices

A Heading on Level 0 (chapter)

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A.1.1 Heading on Level 2 (subsection)

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.

Heading on Level 3 (subsubsection)

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Heading on Level 4 (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.2 Lists

A.2.1 Example for list (itemize)

- First item in a list
- Second item in a list
- Third item in a list
- Fourth item in a list
- Fifth item in a list

Example for list (4*itemize)

- First item in a list
  - First item in a list
    * First item in a list
      · First item in a list
      · Second item in a list

         ∗ Second item in a list

     – Second item in a list

- Second item in a list

A.2.2 Example for list (enumerate)

1. First item in a list
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   a) First item in a list
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         A. First item in a list
         B. Second item in a list
      ii. Second item in a list
   b) Second item in a list
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First item in a list

Second item in a list

Third item in a list

Fourth item in a list

Fifth item in a list

Example for list (4*description)

First item in a list

    First item in a list

        First item in a list

            First item in a list

            Second item in a list

        Second item in a list

    Second item in a list

Second item in a list

B Heading on Level 0 (chapter)

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B.1 Heading on Level 1 (section)

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.

B.1.1 Heading on Level 2 (subsection)

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      B. Second item in a list

    ii. Second item in a list

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    First item in a list

        First item in a list

            First item in a list

            Second item in a list

        Second item in a list

    Second item in a list

Second item in a list

Statement of Affirmation

I hereby declare that this thesis was in all parts exclusively prepared on my own, without using other resources than those stated. The thoughts taken directly or indirectly from external sources are properly marked as such. This thesis or parts of it were not previously submitted to another academic institution and have also not yet been published.

Dornbirn, am 15.03.2018   Title Surname Name Title