

# A VERY COOL TOPIC

NAME OF THE STUDENT

Master Thesis April 24, 1337

Secure Mobile Networking Lab Department of Computer Science



A Very Cool Topic Master Thesis SEEMOO-MSC-0000

Submitted by Name of the Student Date of submission: April 24, 1337

Advisor: Prof. Dr.-Ing. Matthias Hollick

Supervisor: Marc Werner and Matthias Schulz

Technische Universität Darmstadt Department of Computer Science Secure Mobile Networking Lab

Δ	R	S	П	Γ'	R	Δ	(	ר ר	Г
$\overline{}$	D	. 7	_		·	$\overline{}$			

Short summary of the contents in English...a great guide by Kent Beck how to write good abstracts can be found here:

https://plg.uwaterloo.ca/~migod/research/beck00PSLA.html

# ZUSAMMENFASSUNG

Kurze Zusammenfassung des Inhaltes in deutscher Sprache...

## ACKNOWLEDGMENTS

I would like to express my deepest gratitude to my parents and my family for supporting me in all the years of my studies and also while writing this thesis.

Special thanks for giving helpful advice while writing this thesis goes to Prof. Matthias Hollick and Adrian Loch.

Furthermore, I especially thank Sandrine Adélaïde and Adrian Loch for proofreading my thesis.

# CONTENTS

1	INT	RODUC	CTION	1
	1.1	First S	Section	. 1
		1.1.1	Referencing	. 1
		1.1.2	Acronyms	. 1
		1.1.3	Examples on Figures	. 2
		1.1.4	Examples on Tables	. 2
	1.2	Margi	in Notes	. 2
	1.3	Some	Example Text	. 2
2	REL	ATED V	WORK	5
3	DES	IGN		7
4	IMP	LEMEN	NTATION	g
5	EVA	LUATIO	ON	11
6	DIS	CUSSIC	ON	13
7	CON	ICLUSI	ONS	15
A	SOM	IE PRO	OF	17
	BIB	LIOGRA	АРНҮ	19
	ERK	LÄRUN	NG ZUR ABSCHLUSSARBEIT	21

## LIST OF FIGURES

Figure 1.1 Figure 1.2	The wiretap channel	3
LIST OF TAI	BLES	
Table 1.1	Large-scale natural disasters in the last ten years	3
LISTINGS		

INTRODUCTION

1

Start a chapter with text and not with a section header. Open the *classicthesis-config.tex* file to insert the title of your thesis, the names of your supervisors and the hand-in date of your thesis.

#### 1.1 FIRST SECTION

After a section there should always be text before the next section. The first paragraph is always without indentation. Starting from the second paragraph, there is an indentation. Here is an equation without numbers for referencing:

$$\underbrace{\begin{pmatrix} \mathcal{B}_1 \\ \mathcal{B}_2 \\ \vdots \\ \mathcal{B}_R \end{pmatrix}}_{\mathcal{B}} = \underbrace{\begin{pmatrix} H_{1,1} & H_{1,2} & \dots & H_{1,T} \\ H_{2,1} & H_{2,2} & \dots & H_{2,T} \\ \vdots & \vdots & \ddots & \vdots \\ H_{R,1} & H_{R,2} & \dots & H_{R,T} \end{pmatrix}}_{\mathcal{H}_{A \to B}} \cdot \underbrace{\begin{pmatrix} \mathcal{A}_1 \\ \mathcal{A}_2 \\ \vdots \\ \mathcal{A}_T \end{pmatrix}}_{\mathcal{A}}$$

Here is an equation that you can reference:

$$\underbrace{\begin{pmatrix} \mathcal{B}_{1} \\ \mathcal{B}_{2} \\ \vdots \\ \mathcal{B}_{R} \end{pmatrix}}_{\mathcal{B}} = \underbrace{\begin{pmatrix} H_{1,1} & H_{1,2} & \dots & H_{1,T} \\ H_{2,1} & H_{2,2} & \dots & H_{2,T} \\ \vdots & \vdots & \ddots & \vdots \\ H_{R,1} & H_{R,2} & \dots & H_{R,T} \end{pmatrix}}_{H_{A \rightarrow B}} \cdot \underbrace{\begin{pmatrix} \mathcal{A}_{1} \\ \mathcal{A}_{2} \\ \vdots \\ \mathcal{A}_{T} \end{pmatrix}}_{\mathcal{A}} \tag{1.1}$$

## 1.1.1 Referencing

Take a look in the following list to reference sections, figures and equations:

- Section 1.1
- Figure 1.1
- Equation (1.1)

## 1.1.2 Acronyms

For acronyms you should use the *glossaries* package and put your acronyms in the *FrontBackmatter/acronyms.tex* file. The first acronym is always written in it's long form, the following occurrences are abbreviated: first occurrence signal-to-noise ratio (SNR), second occurrence SNR, plural SNRs.

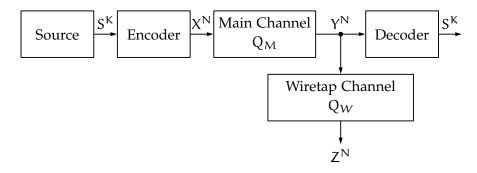


Figure 1.1: The wiretap channel (source: [1])

## 1.1.3 Examples on Figures

When using figures, use vector graphics whenever possible. In Figures 1.1 and 1.2 are some examples to generate vector graphics directly from LaTeXcode. The second example is based on the *matlab2tikz* script for matlab. You find an example in the *gfx/matlab/create\_example\_graph.m* file. TikZ is used to generate the graphics. As it takes some time and memory to recompile a graphic, pdflatex caches generated figures when the --enable-write18 switch is set when calling pdflatex. Graphics are only recompiled when you uncomment the \tikzset{external/remake next} command. Figures should always appear after the first reference in the text or at the top of the same page as the reference, but never before the reference. Prefer placing figures on separate pages. Try to always have figures and text on each page. Or place enough figures to fill a page only with figures.

#### 1.1.4 Examples on Tables

You can find an example table in Table 1.1 using the *tabular* environment. Note the use of horizontal lines from the *booktabs* package (\toprule, \midrule, and \bottomrule) and removed whitespace at both sides of the table (@{}) as proposed by Markus Püschel.<sup>1</sup>

#### 1.2 MARGIN NOTES

Especially in the standard SEEMOO template with wide margins, you are encouraged to insert text into the margins. If you decide to do so, plan to have at least one margin note per double page.

#### 1.3 SOME EXAMPLE TEXT

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend

Here you can add

text to the margin.
For example, to
summarize the
section next to it.

<sup>1</sup> https://www.inf.ethz.ch/personal/markusp/teaching/guides/guide-tables.pdf

Disaster	Year	Country	Area (km²)
Nepal earthquake	2015	Nepal	3610
Cyclone Pam	2015	Vanuatu	12 190
Ludian earthquake	2014	China	1 487
Typhoon Haiyan	2013	Philippines	71 503
Christchurch earthquake	2011	New Zealand	1 426
East Africa drought	2011	East Africa	2 346 466
Tropical storm Washi	2011	Philippines	104 530
Tohoku earthquake	2011	Japan	83 955
Haiti earthquake	2010	Haiti	27750
Afghanistan blizzard	2008	Afghanistan	652 864
Sichuan earthquake	2008	China	485 000
Cyclone Nargis	2008	Myanmar	676 578

Table 1.1: Large-scale natural disasters in the last ten years

consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

Suspendisse vel felis. Ut lorem lorem, interdum eu, tincidunt sit amet, laoreet vitae, arcu. Aenean faucibus pede eu ante. Praesent enim elit, rutrum at, molestie non, nonummy vel, nisl. Ut lectus eros, malesuada sit amet, fermentum eu, sodales cursus, magna. Donec eu purus. Quisque vehicula, urna sed ultricies auctor, pede lorem egestas dui, et convallis elit erat sed nulla. Donec luctus. Curabitur et nunc. Aliquam dolor odio, commodo pretium, ultricies non, pharetra in, velit. Integer arcu est, nonummy in, fermentum faucibus, egestas vel, odio.

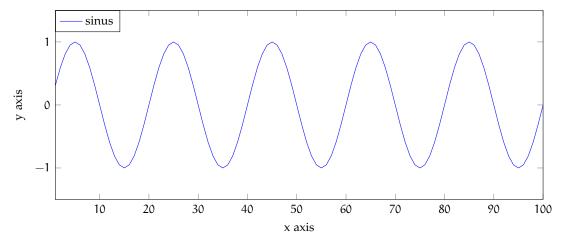


Figure 1.2: Caption of figure

Sed commodo posuere pede. Mauris ut est. Ut quis purus. Sed ac odio. Sed vehicula hendrerit sem. Duis non odio. Morbi ut dui. Sed accumsan risus eget odio. In hac habitasse platea dictumst. Pellentesque non elit. Fusce sed justo eu urna porta tincidunt. Mauris felis odio, sollicitudin sed, volutpat a, ornare ac, erat. Morbi quis dolor. Donec pellentesque, erat ac sagittis semper, nunc dui lobortis purus, quis congue purus metus ultricies tellus. Proin et quam. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Praesent sapien turpis, fermentum vel, eleifend faucibus, vehicula eu, lacus.

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Donec odio elit, dictum in, hendrerit sit amet, egestas sed, leo. Praesent feugiat sapien aliquet odio. Integer vitae justo. Aliquam vestibulum fringilla lorem. Sed neque lectus, consectetuer at, consectetuer sed, eleifend ac, lectus. Nulla facilisi. Pellentesque eget lectus. Proin eu metus. Sed porttitor. In hac habitasse platea dictumst. Suspendisse eu lectus. Ut mi mi, lacinia sit amet, placerat et, mollis vitae, dui. Sed ante tellus, tristique ut, iaculis eu, malesuada ac, dui. Mauris nibh leo, facilisis non, adipiscing quis, ultrices a, dui.

Morbi luctus, wisi viverra faucibus pretium, nibh est placerat odio, nec commodo wisi enim eget quam. Quisque libero justo, consectetuer a, feugiat vitae, porttitor eu, libero. Suspendisse sed mauris vitae elit sollicitudin malesuada. Maecenas ultricies eros sit amet ante. Ut venenatis velit. Maecenas sed mi eget dui varius euismod. Phasellus aliquet volutpat odio. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Pellentesque sit amet pede ac sem eleifend consectetuer. Nullam elementum, urna vel imperdiet sodales, elit ipsum pharetra ligula, ac pretium ante justo a nulla. Curabitur tristique arcu eu metus. Vestibulum lectus. Proin mauris. Proin eu nunc eu urna hendrerit faucibus. Aliquam auctor, pede consequat laoreet varius, eros tellus scelerisque quam, pellentesque hendrerit ipsum dolor sed augue. Nulla nec lacus.

Suspendisse vitae elit. Aliquam arcu neque, ornare in, ullamcorper quis, commodo eu, libero. Fusce sagittis erat at erat tristique mollis. Maecenas sapien libero, molestie et, lobortis in, sodales eget, dui. Morbi ultrices rutrum lorem. Nam elementum ullamcorper leo. Morbi dui. Aliquam sagittis. Nunc placerat. Pellentesque tristique sodales est. Maecenas imperdiet lacinia velit. Cras non urna. Morbi eros pede, suscipit ac, varius vel, egestas non, eros. Praesent malesuada, diam id pretium elementum, eros sem dictum tortor, vel consectetuer odio sem sed wisi.

## RELATED WORK

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

#### **DESIGN**

Morbi luctus, wisi viverra faucibus pretium, nibh est placerat odio, nec commodo wisi enim eget quam. Quisque libero justo, consectetuer a, feugiat vitae, porttitor eu, libero. Suspendisse sed mauris vitae elit sollicitudin malesuada. Maecenas ultricies eros sit amet ante. Ut venenatis velit. Maecenas sed mi eget dui varius euismod. Phasellus aliquet volutpat odio. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Pellentesque sit amet pede ac sem eleifend consectetuer. Nullam elementum, urna vel imperdiet sodales, elit ipsum pharetra ligula, ac pretium ante justo a nulla. Curabitur tristique arcu eu metus. Vestibulum lectus. Proin mauris. Proin eu nunc eu urna hendrerit faucibus. Aliquam auctor, pede consequat laoreet varius, eros tellus scelerisque quam, pellentesque hendrerit ipsum dolor sed augue. Nulla nec lacus.

#### **IMPLEMENTATION**

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

#### **EVALUATION**

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetuer.

## **DISCUSSION**

Suspendisse vel felis. Ut lorem lorem, interdum eu, tincidunt sit amet, laoreet vitae, arcu. Aenean faucibus pede eu ante. Praesent enim elit, rutrum at, molestie non, nonummy vel, nisl. Ut lectus eros, malesuada sit amet, fermentum eu, sodales cursus, magna. Donec eu purus. Quisque vehicula, urna sed ultricies auctor, pede lorem egestas dui, et convallis elit erat sed nulla. Donec luctus. Curabitur et nunc. Aliquam dolor odio, commodo pretium, ultricies non, pharetra in, velit. Integer arcu est, nonummy in, fermentum faucibus, egestas vel, odio.

## CONCLUSIONS

Sed commodo posuere pede. Mauris ut est. Ut quis purus. Sed ac odio. Sed vehicula hendrerit sem. Duis non odio. Morbi ut dui. Sed accumsan risus eget odio. In hac habitasse platea dictumst. Pellentesque non elit. Fusce sed justo eu urna porta tincidunt. Mauris felis odio, sollicitudin sed, volutpat a, ornare ac, erat. Morbi quis dolor. Donec pellentesque, erat ac sagittis semper, nunc dui lobortis purus, quis congue purus metus ultricies tellus. Proin et quam. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Praesent sapien turpis, fermentum vel, eleifend faucibus, vehicula eu, lacus.



## SOME PROOF

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Donec odio elit, dictum in, hendrerit sit amet, egestas sed, leo. Praesent feugiat sapien aliquet odio. Integer vitae justo. Aliquam vestibulum fringilla lorem. Sed neque lectus, consectetuer at, consectetuer sed, eleifend ac, lectus. Nulla facilisi. Pellentesque eget lectus. Proin eu metus. Sed porttitor. In hac habitasse platea dictumst. Suspendisse eu lectus. Ut mi mi, lacinia sit amet, placerat et, mollis vitae, dui. Sed ante tellus, tristique ut, iaculis eu, malesuada ac, dui. Mauris nibh leo, facilisis non, adipiscing quis, ultrices a, dui.

## BIBLIOGRAPHY

[1] A. D. Wyner. "The Wire-tap Channel." In: *Bell Systems Technical Journal* 54.8 (1975), pp. 1355–1387.

gemäß § 22 Abs. 7 und § 23 Abs. 7 APB TU Darmstadt

Hiermit versichere ich, Name of the Student, die vorliegende Master Thesis gemäß § 22 Abs. 7 APB der TU Darmstadt ohne Hilfe Dritter und nur mit den angegebenen Quellen und Hilfsmitteln angefertigt zu haben. Alle Stellen, die Quellen entnommen wurden, sind als solche kenntlich gemacht worden. Diese Arbeit hat in gleicher oder ähnlicher Form noch keiner Prüfungsbehörde vorgelegen. Mir ist bekannt, dass im Falle eines Plagiats (§ 38 Abs. 2 APB) ein Täuschungsversuch vorliegt, der dazu führt, dass die Arbeit mit 5,0 bewertet und damit ein Prüfungsversuch verbraucht wird. Abschlussarbeiten dürfen nur einmal wiederholt werden. Bei der abgegebenen Thesis stimmen die schriftliche und die zur Archivierung eingereichte elektronische Fassung gemäß § 23 Abs. 7 APB überein.

#### THESIS STATEMENT

pursuant to § 22 paragraph 7 and § 23 paragraph 7 of APB TU Darmstadt

I herewith formally declare that I, Name of the Student, have written the submitted Master Thesis independently pursuant to § 22 paragraph 7 of APB TU Darmstadt. I did not use any outside support except for the quoted literature and other sources mentioned in the paper. I clearly marked and separately listed all of the literature and all of the other sources which I employed when producing this academic work, either literally or in content. This thesis has not been handed in or published before in the same or similar form. I am aware, that in case of an attempt at deception based on plagiarism (§ 38 paragraph 2 APB), the thesis would be graded with 5.0 and counted as one failed examination attempt. The thesis may only be repeated once. In the submitted thesis the written copies and the electronic version for archiving are pursuant to § 23 paragraph 7 of APB identical in content.

Darmstadt, April 24, 1337	
	Name of the Student