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Technische Universität Darmstadt
Department of Computer Science
Secure Mobile Networking Lab

ABSTRACT

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CONTENTS

I	INTRODUCTION	1
1	INTRODUCTION	3
1.1	First Section	3
1.1.1	Referencing	3
1.1.2	Acronyms	3
1.1.3	Examples on Figures	4
1.2	Margin Notes	4
1.3	Some Example Text	4
2	RELATED WORK	7
II	CONTRIBUTION	9
3	DESIGN	11
4	IMPLEMENTATION	13
5	EVALUATION	15
III	DISCUSSION AND CONCLUSIONS	17
6	DISCUSSION	19
7	CONCLUSIONS	21
IV	APPENDIX	23
A	APPENDIX	25
	BIBLIOGRAPHY	27

LIST OF FIGURES

Figure 1	The wiretap channel	4
Figure 2	Caption for list of figures	5

LIST OF TABLES

LISTINGS

ACRONYMS

SNR signal-to-noise ratio

Part I

INTRODUCTION

The first chapter of this part gives an introduction and a motivation to this thesis, followed by a presentation of related work found in the area of physical layer security. In the third chapter, we present some definitions and background information to make it easier for the reader to quickly understand the subsequent parts of this thesis.

INTRODUCTION

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:

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

Here is an equation that you can reference:

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

1.1.1 Referencing

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

- Section 1.1
- Figure 1
- Equation 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

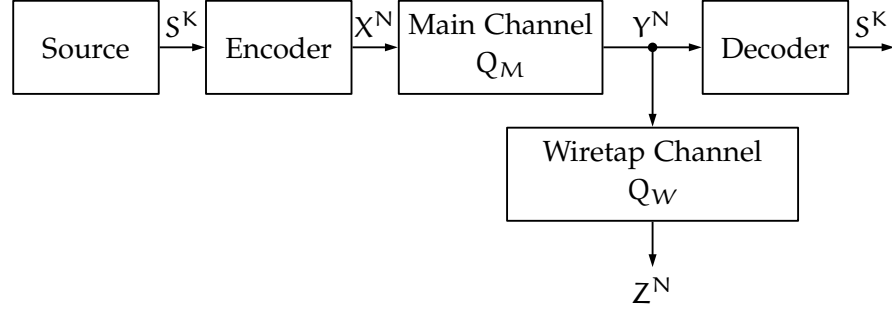


Figure 1: The wiretap channel (source: [1])

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.

1.1.3 Examples on Figures

When using figures, use vector graphics whenever possible. In Figure 1 and Figure 2 are some examples to generate vector graphics directly from \LaTeX code. 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.

1.2 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.

*Here you can add
text to the margin.
For example, to
summarize the
section next to it.*

1.3 SOME EXAMPLE TEXT

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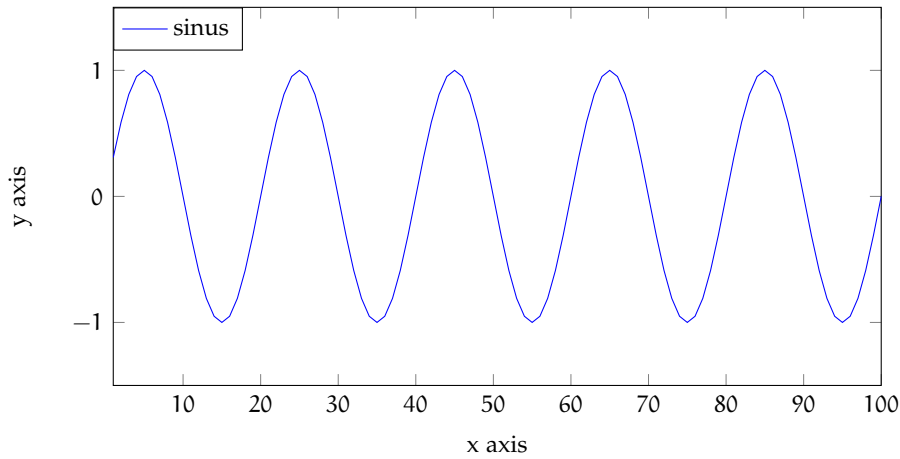


Figure 2: Caption of figure

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RELATED WORK

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Part II

CONTRIBUTION

The contribution starts with a design chapter, where we mathematically describe the design of the physical layer security system, as well as the adaptive filter of the attacker. After the design follows the implementation on WARP nodes. Here we give an insight into the challenges of implementing the designed MIMO communication system. The last chapter concentrates on evaluating the performance of our proposed attack in simulation and practice.

DESIGN

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IMPLEMENTATION

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EVALUATION

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Part III

DISCUSSION AND CONCLUSIONS

After the evaluation, we further discuss the results and give an outlook. In addition, we finish this work with conclusions.

DISCUSSION

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CONCLUSIONS

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Part IV

APPENDIX

APPENDIX

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BIBLIOGRAPHY

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

ERKLÄRUNG

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Darmstadt, 24. April 1337

Name of the Student