FH | JOANNEUM
System Test Engineering

Title of your Thesis
Additional Title

Master's Thesis

written by:
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at the master's degree programme System Test Engineering
of the FH JOANNEUM – University of Applied Sciences, Austria

supervised by:
Supervisor

Graz, January 26, 2024

Obligatory declaration

I hereby confirm and declare that the present Master's Thesis was composed by myself without any help from others and that the work contained herein is my own and that I have only used the specified sources and aids. The uploaded version is identical to any printed version submitted.
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The present original thesis has not been submitted to another university in Austria or abroad for the award of an academic degree in this form. I understand that the provision of incorrect information in this signed declaration may have legal consequences.

Abstract

Please put the summary of your work here!

Acknowledgments

Thanks to .....

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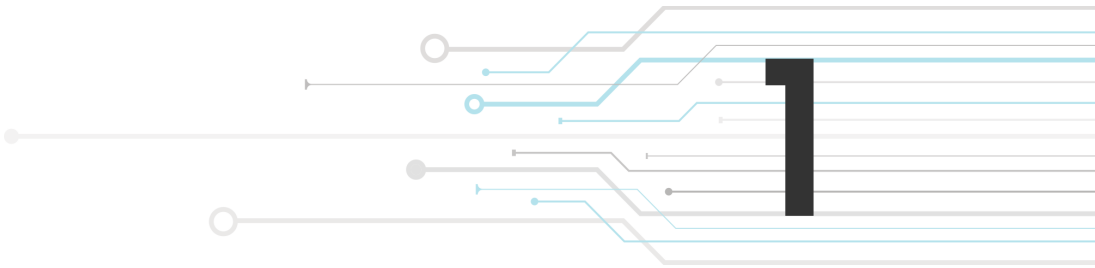


Examples

This Chapter contains examples of how to use the template with different elements, like images, tables, code, lists.

1.1 Text

This section is meant to show how to integrate text structured in section ans subsactions can be add to the document.

1.1.1 Various Formatting Styles in Text

Here is an example text that demonstrates various formatting styles:

- **Bold text**
- *Italic text*
- Underlined text
- `Code text`

You can use these formatting styles to enhance the visual appearance of your text in your LaTeX document.

1.2 List Structures

This section shows how to create different list structures.

1.2.1 *Itemize* create a bullet list

- First item
- Second item
- Third item

1.2.2 *Enumerate* create an enumerated list

1. First item
2. Second item
3. Third item

1.2.3 Nested lists

1. The first item
   (a) Nested item 1
   (b) Nested item 2
2. The second item
3. The third etc ...

1.3 Image

This section is meant to show how to integrate images in the document.

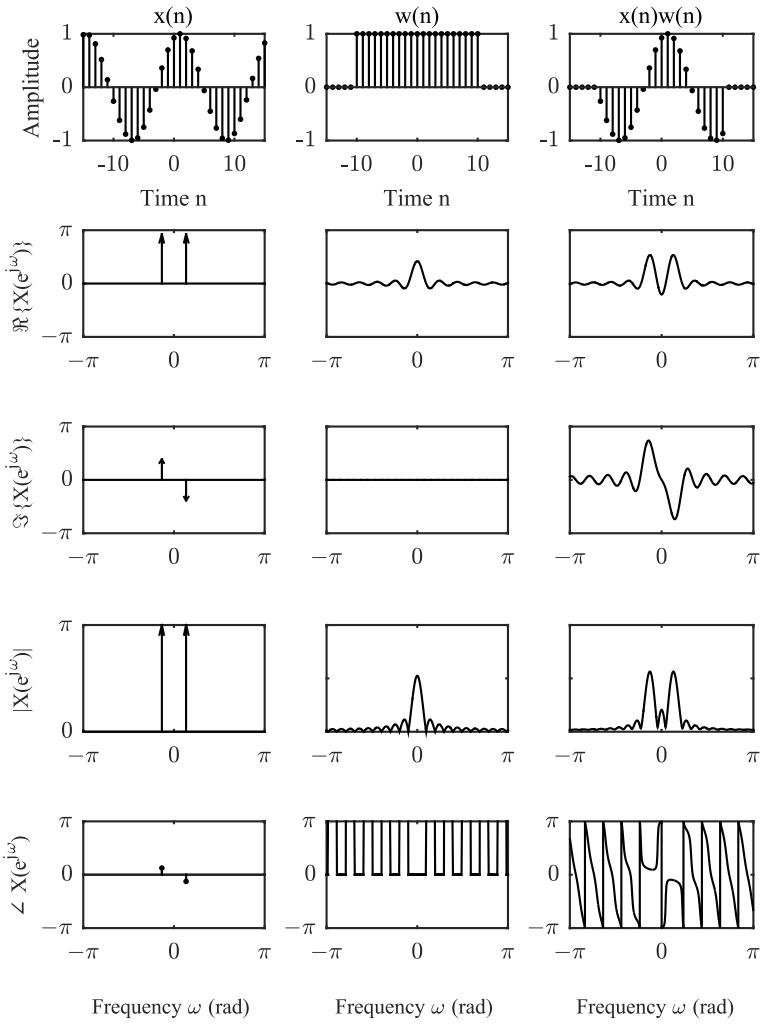


Figure 1.1: A super cool Figure is shown here.

1.3.1 Reference to Image

The Figure of above is referenced here figure 1.1.

1.4 Table

This section is meant to show how to integrate tables in the document.

Table 1.1: Sample Table One

	Gross-Pitch Error (GPE) (%)					**Fine-Pitch Error (FPE) (Hz)**				
GPE/FPE input signal	SNR (dB)					SNR (dB)				
	-6	-3	0	3	6	-6	-3	0	3	6
(UB): est. BM (PEFAC)	26.07	23.67	21.10	19.41	18.56	0.71	0.59	0.75	0.63	0.69
(UB): est. RM (PEFAC)	25.16	22.29	18.51	18.62	16.54	0.71	0.63	0.79	0.74	0.88
est. BM (PEFAC)	48.01	39.75	32.13	28.22	23.26	1.49	0.84	0.86	0.92	0.69
est. BM (proposed PE)	39.37	33.77	27.96	25.05	21.90	1.25	0.85	0.80	0.87	0.88
est. RM (PEFAC)	52.45	44.44	37.80	31.98	27.65	1.99	1.09	1.26	0.89	0.85
est. RM (proposed PE)	46.32	39.21	32.13	28.89	25.34	1.46	0.97	0.94	0.83	0.69
(LB): Mixed signal (PEFAC)	66.2	60.55	53.98	46.52	40.33	2.96	2.42	2.22	1.71	1.46

1.4.1 Reference to Table

The Table of above is referenced here table 1.1.

1.5 Python Code

This section is meant to show how to integrate Python code in the document.

Listing 1.1: Python Example

```
   from sklearn.linear_model import LinearRegression
   LinearRegression
   # Python code example
   def calculate_sum(a, b):
        """This function calculates the sum of two numbers."""
        return a + b

        result = calculate_sum(3, 4)
        print(f"The sum is: {result}")
```

1.5.1 Reference to Python Code

The Python code of above is referenced here listing 1.1.

1.6 Equation

This section is meant to show how to integrate equations in the document.

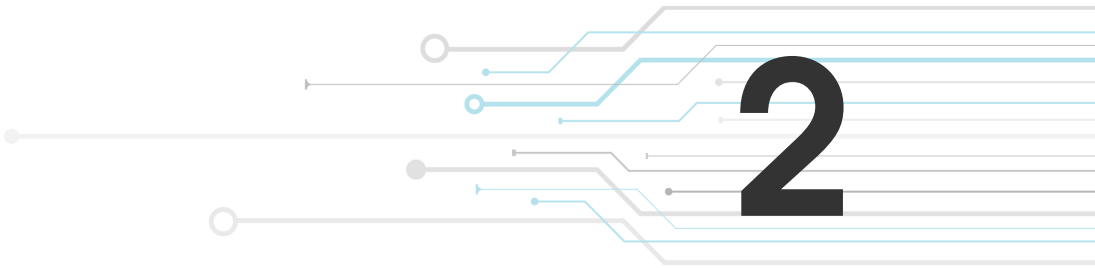
$$X(e^{j\omega}) = \mathrm{DTFTT}\left(x(n)\right) = \sum_{n=-\infty}^{\infty} x(n)e^{-j\omega n}, \tag{1.1}$$

The equation above is referenced here equation (1.1).

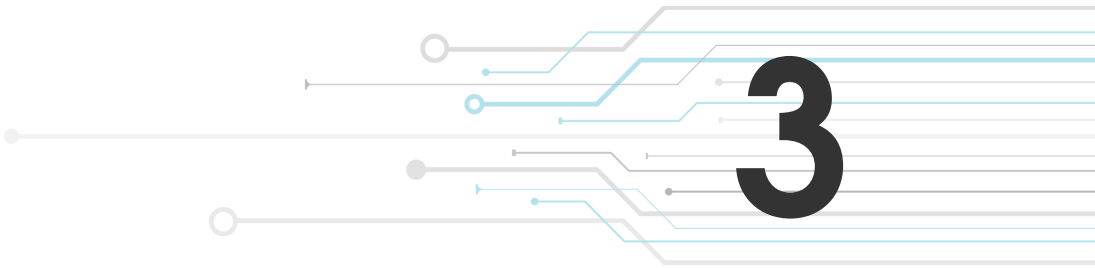
1.7 Citations with BibLaTeX

BibLaTeX, succeeding BibTeX, offers advanced citation features. Use the IEEE style for academic work, here you find some examples.

- An example for citing a book is [1][2]
- Example for citing a journal paper is [3]
- A Technical Standard is examplified in [4]
- Technical Report [5]
- lecture notes [6]
- An example for citing online resources [7]

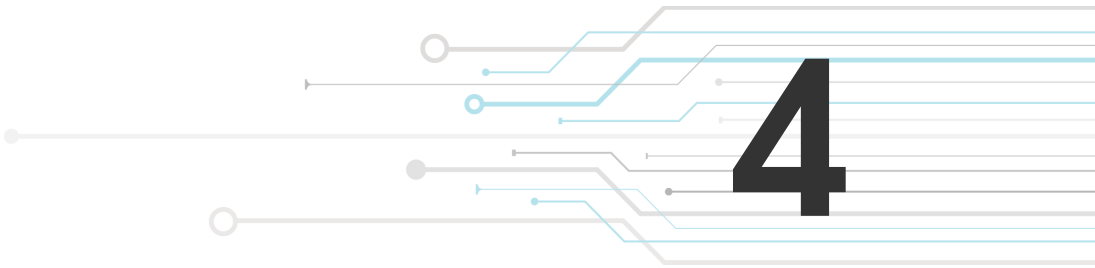


2 Introduction



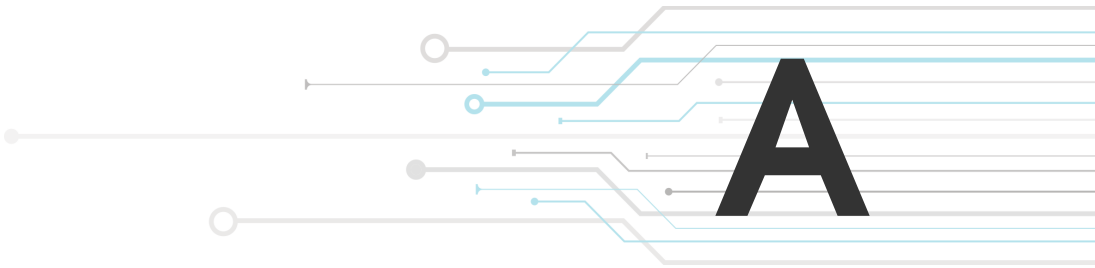
3

Results



4

Discussion



A Appendix

Wow, this is an excellent Appendix. You should read it!

Bibliography

[1] S. Mendel, C. Vogel, *On the Compensation of Magnitude Response Mismatches in M-channel Time-interleaved ADCs*, May 2007.

[2] P. Mowlaee, J. Kulmer, J. Stahl, F. Mayer, *Phase-Aware Signal Processing in Speech Communication: Theory and Practice*. John Wiley & Sons, 2016.

[3] F. Mayer, D. Williamson, P. Mowlaee, D. Wang, "Impact of phase estimation on single-channel speech separation based on time-frequency masking," *Journal of the Acoustical Society of America (JASA)*, vol. 141, no. 6, pp. 4668–4679, 2017.

[4] N. D. 19226-1, *Regelungstechnik und Steuerungstechnik. Allgemeine Grundbegriffe*, Leittechnik. Std., 1994.

[5] T. Mathworks, "Matlab mathematics. r2017a," Nattick: The Mathworks, Tech. Rep., 2017.

[6] R. Okorn, *Halbleitertechnik*. Graz, Vorlesungskript FH JOANNEUM, 2017.

[7] K. M. Göschka. (2006) Merkblatt für den aufbau wissenschaftlicher arbeiten. [Zugriff am 14.03.2012]. [Online]. Available: http://www.infosys.tuwien.ac.at/staff/kmg/Merkblatt.pdf.