Demo Report

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Abstract

This is a demo report-style document to show what that looks like. Suitable for a dissertation.

Contents

Chapter 1

Introduction

You can include files-e.g. place chapters in separate files, etc.

1.1 Lists

You can find excellent Latex help in the following documents[1]:

1. The Not So Short Introduction to LaTeXϵ
2. LaTeXTutorials A Primer
3. LaTeX2ϵ for authors
4. Essential LaTeX++
5. Short Math Guide for LaTeX

Like html, latex supports both numbered (enumerated) and unnumbered (itemized) lists - you can customise these.

- normal,
- tiny,

[1] Search for them on the web

- large,
- Huge
- and various other

font sizes.

1.2 Alignment

This text is
left-aligned. LaTeX is not trying to make each line the same length.

This text is right-
aligned. LaTeX is not trying to make each line the same length.

This line is
at the centre
of the earth

1.3 Font Styles and Colours

You can use **bold**, *italics*, underlining, super^{scripts} and sub$_{scripts}$.

You can colour the font: red, green, blue, etc. Note this requires a package or "stylefile" called color. These packages provides extensions to LaTeX- there is a large collection of them - you can even write your own.

1.4 Figures

Figures and Tables are called "floats" - LaTeXplaces them according to various rules. You can provide hints: (h)ere, (t)op, (b)ottom, and by the float package: (H)ere.

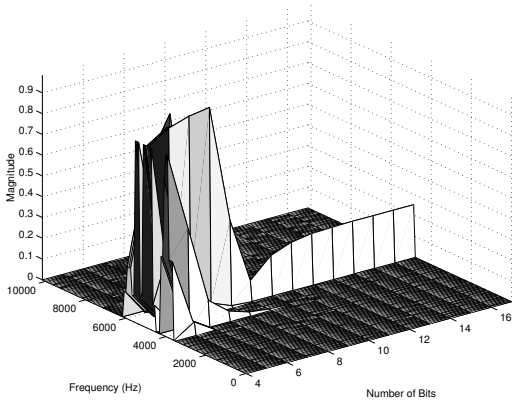


Figure 1.1: Demo Figure

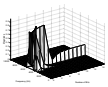


Figure 1.2: Demo Figure-Narrow

Here is a simple figure (see Fig. 1.1).

You can scale and rotate figures (see Figs. 1.2 1.3).

And add borders (see Fig. 1.5).

Note: !htbp means:

! place as early as possible

h place here if can

t otherwise at top of page

b otherwise at bottom of page

p otherwise on a float page.

1.4.1 Useful Tools

Useful figure tools: gnuplot[2], xfig, gimp, **inkscape**, powerpoint, excel.

[2]Can create LaTeXpictures

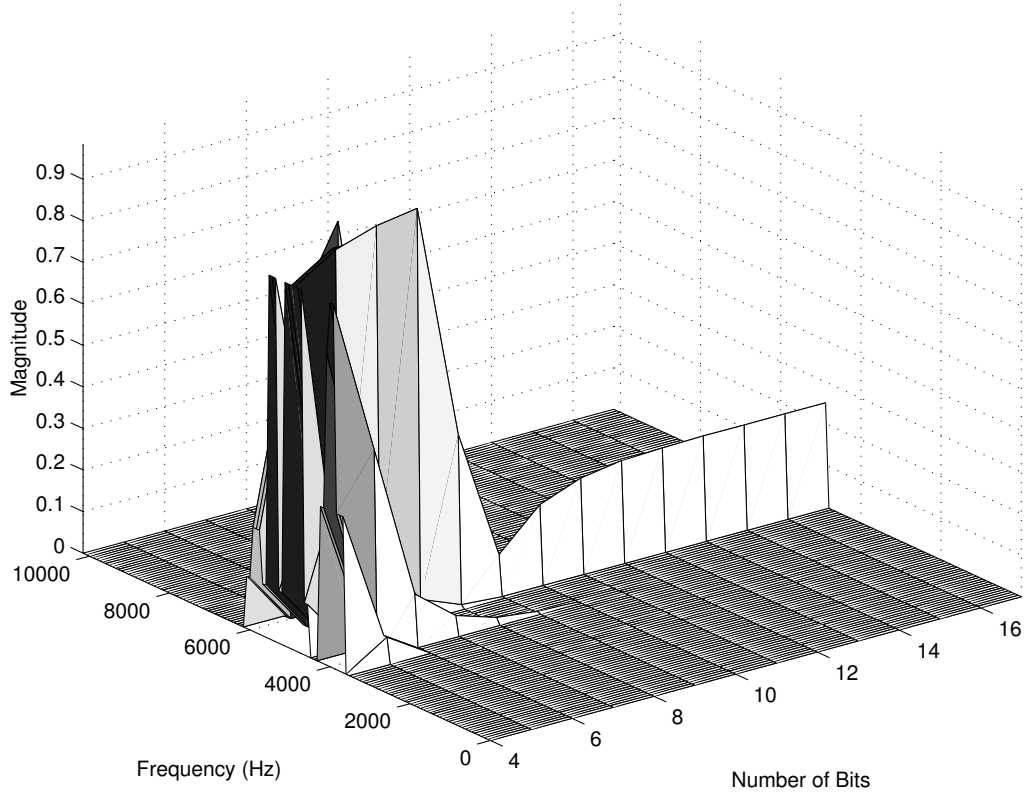


Figure 1.3: Demo Figure-Wide

1.4.2 Floats

Note that figures are *floats* - Latex decides exactly where to place them: the **h**, **t** and **b** are hints, but **H** means Here, even if a page-break is required. If enough figures get queued up, they are all presented at the end of the chapter (or use the \clearpage command).

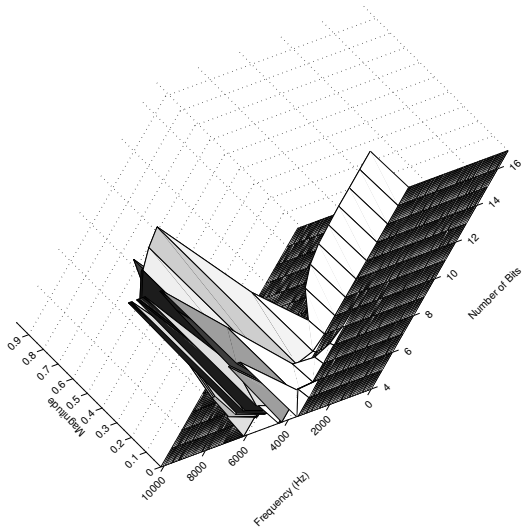


Figure 1.4: Demo Figure-Rotated

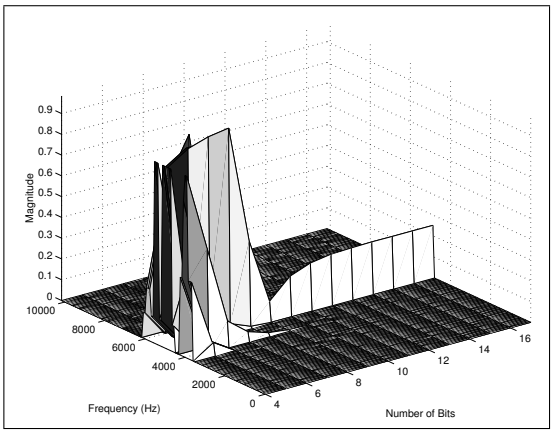


Figure 1.5: Demo Figure-With Border

1.5 Tables

See Table 1.1 for an "example" table. Note the smart-quotes. Note that tables are also *floats* and are placed automatically, unless you use "H".

Table 1.1: This is a Table

ID	**Data**	**Value**
Line 1	data for line 1	189
Line 1	data for line 1	88

You can do all sorts of complex things with tables: multi-row, multi-column, multi-page (with the header rows repeated), etc.

Chapter 2

Background

You can reference any label in the document - for example, the tables are shown in Ch. 1.

You can cite works in the reference section [1] and [2].

Note: the bibliography would normally be in a separate 'bibtex' file, except for very small documents. There are various databases and utilities to help with references also-especially useful when a group is building up a shared list.

Chapter 3

My Work

3.1 Maths Mode and Symbols

LaTeXis excellent at typesetting maths, equations etc. You can reference equations - see Eqn. 3.1.

$$x^2 = y^2 = z^2 \tag{3.1}$$

Or place maths inline: $E = mc^2$, with no equation numbering.

- You can use greek and *other* letters: $\alpha\beta\delta$ €©
- There is a large set of maths symbols: $\Rightarrow \odot \iff \mapsto \overrightarrow{AB} \pm \Pi$, etc.
- Set operators:

$$A \subset B$$

.

- Sums:

$$x = \sum_{i=0}^{\inf} \left(\frac{1}{i}\right)$$

- Integrals:

$$x = \int_{i=0}^{\infty} (\frac{1}{i})$$

- arrays, matrices, etc:

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$$

$$|x| = \begin{cases} -x & \text{if } x < 0 \\ 0 & \text{if } x = 0 \\ x & \text{if } x > 0 \end{cases}$$

- And alignment to (for example) the = sign:

$$\begin{aligned} f(x) &= (a+b)(a-b) \\ &= a^2 - ab + ba - b^2 \\ &= a^2 + b^2 \end{aligned}$$

3.2 Verbatim

Verbatim allows for untranslated text - see Appendix A.

3.3 Boxes

Use boxes, and nested boxes

3.4 Pictures

You can also draw lines and other shapes in pictures - these scale really well, as they are vector graphics. Note how figures float, but raw pictures don't.

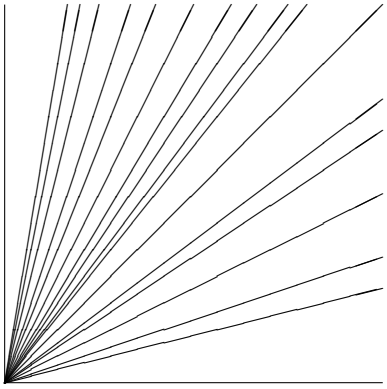
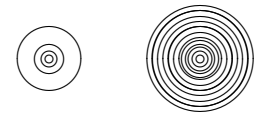
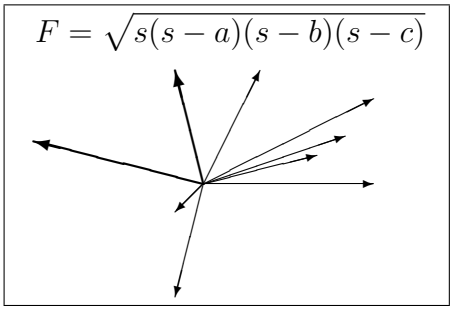


Figure 3.1: Example Picture





Chapter 4

Evaluation

4.1 Experimental Setup

4.1.1 Hardware

4.1.2 Software

4.2 Experiments

Chapter 5

Results

Chapter 6

Conclusions and Future Work

Bibliography

[1] M. Medina-Melendrez *et al.* "Overflow analysis in the fixed-point implementation of the first-order Goertzel algorithm for complex-valued input sequences". *Circuits and Systems, 2009. MWSCAS '09. 52nd IEEE International Midwest Symposium on*, 620–623, 2009.

[2] M. V. Wilkes *et al.* "The Preparation of Programs for an Electronic Digital Computer", *Addison-Wesley* 1951.

Appendix A

Example Code

```
class Demo {
   private int value;
   public static void main(String args[]) {
      System.out.writeln("Demo");
   }
}
```