Summary of LaTeX

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0 Introduction

LaTeX is a document preparation system, which results in very high quality text output. Unlike Microsoft Office, or LibreOffice, or any of the document editing suites, LaTeX is not a WYSIWYG (what you see is what you get) editor, and writing a document in LaTeX is more like coding a program. This brings in two things:

- Uniformity in document looks, and
- Abstraction and automation of unimportant tasks like text alignment and font sizes

Both of these tasks invariably take up a large amount of our productivity in WYSIWYG editors, hence LaTeX is used a lot in scientific publications and is considered a de-facto standard. Here's the LaTeX website.

Basically, LaTeX enables us to create and display the following:

1. Numbered and Bulleted lists (this is a numbered list)
2. Tables
3. Equations
4. Citations (using bibtex)
5. Hyperlinks (using hyperref)
6. Figures (using graphicx)

1 Displaying LaTeX Features

Now, we will draw a table containing some useful Scientific Programming Languages, their website (as a hyperlink), and the year in which they were released:

Language	Website	Year
Octave	https://gnu.org/software/octave/	1988
Julia	https://julialang.org/	2012
R	https://www.r-project.org/	1993
Scilab	https://www.scilab.org/	1990
Perl	https://www.perl.org/	1987
Scala	https://scala-lang.org/	2004

Here, we will show a figure:

Next, let's write an equation. We'll be writing the Divergence Theorem:

$$\iiint_{\mathcal{V}} (\nabla \cdot \mathbf{v}) d\tau = \oiint_{\mathcal{S}} \mathbf{v} \cdot d\mathbf{a} \tag{1}$$

Now, we're referring to 1 saying that it's also called the Gauss Divergence Theorem.

Now, I'm going to try to cite a paper: [1].

References

[1] G. Phanikumar, S. Manjini, P. Dutta, K. Chattopadhyay, and J. Mazumder, "Characterization of a continuous co 2 laser-welded fe-cu dissimilar couple," *Metallurgical and Materials Transactions A*, vol. 36, no. 8, pp. 2137–2147, 2005.