

## Introduction

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- What is L<sup>A</sup>T<sub>E</sub>X?
- Why is it cool?

# What is L<sup>A</sup>T<sub>E</sub>X?

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Google it:

LaTeX is a high-quality typesetting system; it includes features designed for the production of technical and scientific documentation.

LaTeX is the de facto standard for the communication and publication of scientific documents.

LaTeX – A document preparation system  
[www.latex-project.org/](http://www.latex-project.org/)



**Myself: L<sup>A</sup>T<sub>E</sub>X ~ Word + Power Point**

# Why is it cool?

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Please see what you can do with L<sup>A</sup>T<sub>E</sub>X?



# No mouse to write any complex equations

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Example <sup>1</sup>:

Symbol	Script
A and $\alpha$	A and <code>\alpha</code>
B and $\beta$	B and <code>\beta</code>
$\Gamma$ and $\gamma$	<code>\Gamma</code> and <code>\gamma</code>
$\Delta$ and $\delta$	<code>\Delta</code> and <code>\delta</code>
E, $\epsilon$ and $\varepsilon$	E, <code>\epsilon</code> and <code>\varepsilon</code>
Z and $\zeta$	Z and <code>\zeta</code>
H and $\eta$	H and <code>\eta</code>
$\Theta$ , $\theta$ and $\vartheta$	<code>\Theta</code> , <code>\theta</code> and <code>\vartheta</code>
I and $\iota$	I and <code>\iota</code>
K, $\kappa$ and $\varkappa$	K, <code>\kappa</code> and <code>\varkappa</code>
$\Lambda$ and $\lambda$	<code>\Lambda</code> and <code>\lambda</code>
M and $\mu$	M and <code>\mu</code>

<sup>1</sup>Source: <http://en.wikibooks.org/wiki/LaTeX/Mathematics>

## How can I write this sentence in L<sup>A</sup>T<sub>E</sub>X?

$scoreP_j^R = \sum_{i=1}^{M_g} \sum_{k=1}^{N_{breaks}} w_k^R * f(x_k)$  is so easy to write in L<sup>A</sup>T<sub>E</sub>X. Please don't use Word to write such an equation.

Just type:

`scoreP_j^{R} = \sum\limits_{i = 1}^{M_{\{g\}}}\sum\limits_{k=1}^{N_{\{breaks\}}} w_k^{R}*f(x_k)` is easy  
to write in LaTeX. Please don't use Word to write such an equation.

# Adjust picture sizes

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Example: insert a picture named RStudioPicture.png

**SMALL?**  
**Just type**

```
\includegraphics[width = 1cm, height = 1cm]{RStudioPicture.png}
```



# Adjust picture sizes

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Example: insert a picture named RStudioPicture.png

**LARGE?**  
**Just type**

```
\includegraphics[width = 3cm, height = 2.5cm]{RStudioPicture.png}
```




## SMALL columns

```
\begin{tabular}{|p{1cm}|p{1cm}|}  
\hline  
a & b\\  
\hline  
b & c\\  
\hline  
\end{tabular}
```

<b>a</b>	<b>b</b>
<b>b</b>	<b>c</b>

## LARGE and more columns, rows

```
\begin{tabular}{|p{2cm}|p{4cm}|p{2cm}|}  
\hline  
a & b & b1 \\  
\hline  
b & c & c1\\  
\hline  
d & d1 & \includegraphics[width = 0.3cm, height = 0.3cm]{SmileFace.png} \\  
\hline  
\end{tabular}
```

<b>a</b>	<b>b</b>	<b>b1</b>
<b>b</b>	<b>c</b>	<b>c1</b>
<b>d</b>	<b>d1</b>	

# Adjust your table



Want to cite this paper?

NATURE | COMMENT



## Core services: Reward bioinformaticians

Jeffrey Chang

08 April 2015

Just type

`\citett{chang2015core}` published a cool paper.

In 2015, `\citeauthor{chang2015core}` published a cool paper.

And see this

Chang (2015) published a cool paper.

In 2015, Chang published a cool paper.

\*chang2015core is a short name.

# Citation: Natbib package

## Natbib citation styles

Natbib uses the citation style associated with the corresponding **bibliography style** if no specific citation commands are declared. There are some additional commands to control some punctuation parameters. See the example below:

```
\documentclass{article}
\usepackage[utf8]{inputenc}
\usepackage[english]{babel}

%Import the natbib package and sets a bibliography and
citation styles
\usepackage{natbib}
\bibliographystyle{abbrvnat}
\setcitestyle{authoryear,open={({{)},close={}})}

\begin{document}

\section{First Section}
This document is an example, Two items are cited:
\textit{The \LaTeX\ Companion} book \cite[see][chap 2]
{latexcompanion} and Einstein's journal paper
\cite{einstein}.

%Imports the bibliography file "sample.bib"
\bibliography{sample}

\end{document}
```

### 1 First Section

This document is an example, Two items are cited: *The L<sup>A</sup>T<sub>E</sub>X Companion* book ((see Goossens et al., 1993, chap 2)) and Einstein's journal paper Einstein ((1905)).

### References

A. Einstein. Zur Elektrodynamik bewegter Körper. (German) [On the electrodynamics of moving bodies]. *Annalen der Physik*, 322(10):891–921, 1905. doi: <http://dx.doi.org/10.1002/andp.19053221004>.

M. Goossens, F. Mittelbach, and A. Samarin. *The L<sup>A</sup>T<sub>E</sub>X Companion*. Addison-Wesley, Reading, Massachusetts, 1993.

**Great!**

Don't want to spend time to adjust **tables + pictures + citations + formats ...**

**=> please just use  $\text{\LaTeX}$ .**

**Otago  $\text{\LaTeX}$ thesis package can be downloaded from:**  
[http://www.cs.otago.ac.nz/research/systems/  
resources.html](http://www.cs.otago.ac.nz/research/systems/resources.html)

# Presentation

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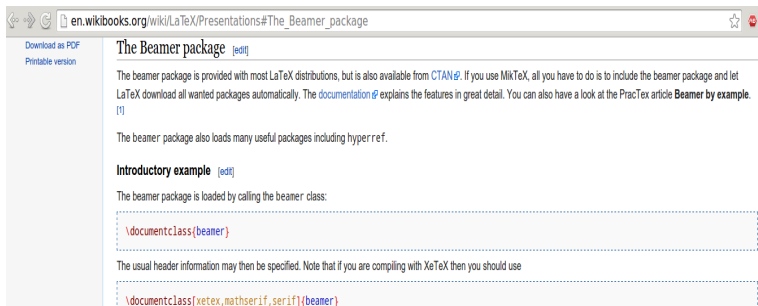
References

$\text{\LaTeX}$  is used to make this presentation.

But how?

The magician “**The Beamer package**”: you can customize (or copy) different themes

⇒ I usually download a theme and adjust it.



The screenshot shows a web browser window displaying the Wikipedia page for "The Beamer package". The address bar shows the URL: [en.wikibooks.org/wiki/LaTeX/Presentations#The\\_Beamer\\_package](https://en.wikibooks.org/wiki/LaTeX/Presentations#The_Beamer_package). The page title is "The Beamer package" with an edit link. On the left sidebar, there are links for "Download as PDF" and "Printable version". The main content area starts with a paragraph explaining that the beamer package is provided with most LaTeX distributions and is also available from CTAN. It mentions that if you use MikTeX, you have to include the beamer package and let LaTeX download all wanted packages automatically. It also refers to the documentation and a Practex article. Below this is a section titled "Introductory example" with an edit link. It states that the beamer package is loaded by calling the beamer class. A code block shows the LaTeX command: `\documentclass{beamer}`. Another paragraph notes that the usual header information may then be specified, and a second code block shows: `\documentclass[xetex,mathserif,serif]{beamer}`. At the bottom of the browser window, there are navigation icons.

# Beamer example

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## Rigid body dynamics

- Coriolis acceleration

$$\vec{a}_p = \vec{a}_o + \frac{b_d^2}{dt^2} \vec{r} + 2\vec{\omega}_{ib} \times \frac{b_d}{dt} \vec{r} + \vec{\alpha}_{ib} \times \vec{r} + \vec{\omega}_{ib} \times (\vec{\omega}_{ib} \times \vec{r})$$

- Transversal acceleration
- Centripetal acceleration

Author: ()	Presentation title	November 29, 2007	1 / 1
Rigid body dynamics	Rigid body dynamics	Rigid body dynamics	
<ul style="list-style-type: none"> <li>Coriolis acceleration</li> </ul> $\vec{a}_p = \vec{a}_o + \frac{b_d^2}{dt^2} \vec{r} + 2\vec{\omega}_{ib} \times \frac{b_d}{dt} \vec{r} + \vec{\alpha}_{ib} \times \vec{r} + \vec{\omega}_{ib} \times (\vec{\omega}_{ib} \times \vec{r})$	<ul style="list-style-type: none"> <li>Coriolis acceleration</li> <li>Transversal acceleration</li> </ul> $\vec{a}_p = \vec{a}_o + \frac{b_d^2}{dt^2} \vec{r} + 2\vec{\omega}_{ib} \times \frac{b_d}{dt} \vec{r} + \vec{\alpha}_{ib} \times \vec{r} + \vec{\omega}_{ib} \times (\vec{\omega}_{ib} \times \vec{r})$	<ul style="list-style-type: none"> <li>Coriolis acceleration</li> <li>Transversal acceleration</li> <li>Centripetal acceleration</li> </ul> $\vec{a}_p = \vec{a}_o + \frac{b_d^2}{dt^2} \vec{r} + 2\vec{\omega}_{ib} \times \frac{b_d}{dt} \vec{r} + \vec{\alpha}_{ib} \times \vec{r} + \vec{\omega}_{ib} \times (\vec{\omega}_{ib} \times \vec{r})$	

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## Bullets

A LaTeX  
beamer theme  
for Debian

Andreas Tille

First section

foo  
bar

Another  
section

Bla  
foo bar

- ❶ Be friendly and cuddly - rounded bullets  
`useinnertheme[shadow]{rounded}`  
Showing off with Debian's own bullets?  
Would require some programming
- ❷ Hard to implement
- ❸ Uncover items step by step  
`beamerdefaultoverlayspecification{<+>}`
- ❹ Use grayed future items `setbeamercovered{dynamic}`

◀ ◻ ▶ ◀ ◻ ▶ ◀ ◻ ▶ ◀ ◻ ▶ ◀ ◻ ▶ ◀ ◻ ▶

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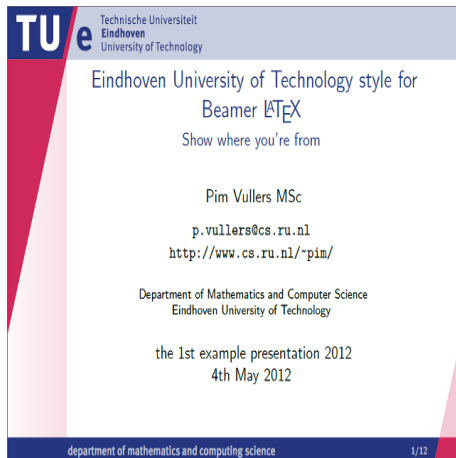
Thesis

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The slide features a blue header bar with the TU/e logo and university name. A large red triangle is on the left side. The main content is centered in blue text. The footer is a dark blue bar with white text.

**TU e** Technische Universiteit  
Eindhoven  
University of Technology

Eindhoven University of Technology style for  
Beamer L<sup>A</sup>T<sub>E</sub>X

Show where you're from

Pim Vullers MSc

`p.vullers@cs.ru.nl`  
`http://www.cs.ru.nl/~pim/`

Department of Mathematics and Computer Science  
Eindhoven University of Technology

the 1st example presentation 2012  
4th May 2012

department of mathematics and computing science 1/12



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UPPSALA  
UNIVERSITET

Introduction  
Cool Stuff  
Coloured  
Boxes  
Math and Examples  
Thematics and  
Outlines  
Other Stuff

Conclusions

2007-04-07

## Options

- **Navigation:** `[withnav]` use the (horizontal) navigation bar right over the footline
- **Page numbers:** `[numbers|totalnumber]` will include the number of the current slide in the footline (along with the total number)
- **Section overview:**  
`[hideallsubsections|hideothersubsections]`
- **Shades:** `[sidebarshades]` use shades (darker red boxes around the active section)

### Example (My favorite)

```
\usetheme{[hideothersubsections,numbers,sidebarshades]Uppsala}
```

# Open emacs/vim/word...and type it, then go to terminal to compile it with *pdflatex* and *bibtex*.

```
\documentclass[12pt]{article}
\usepackage{graphics}
\usepackage{natbib}
\bibliographystyle{abbrvnat}
\setcitestyle{authoryear,open={},close={}}


\begin{document}

The lab suggested that I should give a short introduction about \LaTeX
I don't know what I should present, so I have decided to introduce:

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
\section{Equation}

You can type \begin{verbatim}\alpha \end{verbatim} to obtain  $\alpha$ .
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
\section{Table/Picture}

There is a table here.

\begin{tabular}{|p{3cm}|p{6cm}|}
\hline
A1 & A2 \\
\hline
Ha & 
\hline
\end{tabular}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
\section{Citation}

Here, I use a paper of \cite{chang2015core}.

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
\section{Thesis}

Here, I suggest that people should use the format of Otago University.

\bibliography{bibLabMik}
\end{document}
```

The lab suggested that I should give a short introduction about  $\text{\LaTeX}$ . I don't know what I should present, so I have decided to introduce:

## 1 Equation


You can type

`\alpha`

to obtain  $\alpha$ .

## 2 Table/Picture

There is a table here.

A1	A2
Ha	

## 3 Citation

Here, I use a paper of Chang (2015).

## 4 Thesis

Here, I suggest that people should use the format of Otago University.

## References

J. Chang. Core services: Reward bioinformaticians. *Nature*, 520(7546):151–152, 2015.

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You can use L<sup>A</sup>T<sub>E</sub>X to:

- ① write your thesis/proposal/manual.
- ② make your presentation.

However, you have to work with biologists, so **MUST** use Word to write papers.

J. Chang. Core services: Reward bioinformaticians. *Nature*,  
520(7546):151–152, 2015.

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