

Welcome to the World of \LaTeX

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May 13, 2005

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TEX

May 13, 2005

L^AT_EX

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Why L^AT_EX?

Why \LaTeX ?

- Typeset mathematics (well)
- Better grades on your homework
- Get papers accepted

\LaTeX is Markup

- (x)emacs, (g)vi(m), etc.

- \$ % \ # { } _ ^ ~

- Easier than programming

(Also LyX, almost WYSIWYG.)

Overview

- `edit foo.tex`
- `latex foo.tex`
- `xdvi foo.dvi`
- `dvips, dvipdf, etc.`

Structure

```
\documentclass{report}
```

article, report, book, slides

Structure

- `\usepackage`
- `\include`
- `\section`, `\subsection`, etc.
- `\label`, `\ref`, `\pageref`

Mathematics

`$. . . $`

```
\begin{displaymath}
  a^2 + b^2 = c^2
\end{displaymath}
```

$$a^2 + b^2 = c^2$$

`x+y-z` `vs` $x + y - z$

Mathematics

$$\lim_{x \rightarrow 0} \frac{\sin x}{x} \neq \infty$$

`\lim_{x \rightarrow 0} \frac{\sin x}{x} \neq \infty`

Mathematics

$$\left(\sum_{i=0}^n \frac{1}{i}\right)^2$$

(\sum_{i=0}^n \frac{1}{i})^2

Mathematics

$$\left(\sum_{i=0}^n \frac{1}{i} \right)^2$$

`\left(\sum_{i=0}^n \frac{1}{i} \right)^2`

Environments

- verbatim
- tabular
- figure

Commands

- `\textbf{}`
- `\textit{}`
- `\underline{}`
- `\texttt{}`

More!

- Graphics
- Define new commands
- Define new environments

Example

We now move on to combining the intensity histogram statistics and the geometric statistics. As shown in Fig. 2, we believe it is appropriate to combine these scale level by scale level. Let us take segmentation, i.e., region designation in a particular target case, as our driving problem. From the Bayesian point of view we wish to compute the posterior optimum, i.e. $\arg \max_{\mathbf{z}} p(\mathbf{z} | \mathcal{I})$. Doing this scale by scale means optimizing $p(\mathbf{z}^j | \mathcal{I})$. Moreover, we do not optimize $p(\mathbf{z}^j | \mathcal{I})$ directly but rather apply the Iterative Conditional Modes algorithm to $p(\mathbf{z}_k^j | \mathbf{z}_{N(j,k)}, \mathcal{I})$. But $p(\mathbf{z}_k^j | \mathbf{z}_{N(j,k)}, \mathcal{I}) = p(\mathcal{I} | \mathbf{z}_{k \cup N(j,k)}^j) p(\mathbf{z}_k^j | \mathbf{z}_{N(j,k)}) \times$ a constant with respect to \mathbf{z}_k^j .

Example

We now move on to combining the intensity histogram statistics and the geometric statistics. As shown in Fig. 2, we believe it is appropriate to combine these scale level by scale level. Let us take segmentation, i.e., region designation in a particular target case, as our driving problem. From the Bayesian point of view we wish to compute the posterior optimum, i.e. $\arg \max_{\underline{z}} p(\underline{z} | \underline{I})$. Doing this scale by scale means optimizing $p(\underline{z}^i | \underline{I})$. Moreover, we do not optimize $p(\underline{z}^i | \underline{I})$ directly but rather apply the Iterative Conditional Modes algorithm to $p(\underline{z}_k | \underline{z}_{N(i,k)}, \underline{I})$. But $p(\underline{z}_k^j | \underline{z}_{N(j,k)}, \underline{I}) = p(\underline{I} | \underline{z}_{k \cup N(j,k)}^j) p(\underline{z}_k^j | \underline{z}_{N(j,k)}) \times$ a constant with respect to \underline{z}_k^j .

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Discussion

And <http://www.cs.drexel.edu/~jeffa/talks/>