Welcome to the World of \LaTeX

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TEX
\texttt{LATEX}
Why \texttt{LATEX}?
Why \LaTeX?

- Typeset mathematics (well)
- Better grades on your homework
- Get papers accepted
\LaTeX\ is Markup

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

- \$ \% \ \backslash \ \# \ \{ \ \} \ _ \ ^ \ ~

- 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
$\ldots$

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

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

$x + y - z \quad \text{vs} \quad x + y - z$
Mathematics

\[ \lim_{x \to 0} \frac{\sin x}{x} \neq \infty \]

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Mathematics

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

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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. \( \arg \max_Z p(Z \mid I) \). Doing this scale by scale means optimizing \( p(z^i \mid I) \). Moreover, we do not optimize \( p(z^i \mid I) \) directly but rather apply the Iterative Conditional Modes algorithm to \( p(z^i_k \mid z_{N(i,k)} , I) \). But \( p(z^i_k \mid z_{N(i,k)} , I) = p(I \mid z^i_k \cdot z_{N(i,k)}) p(z^i_k \mid z_{N(i,k)}) \times \) a constant with respect to \( z_k^i \).
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. \( \arg \max_z p(z | I) \). Doing this scale by scale means optimizing \( p(z^i | I) \).

Moreover, we do not optimize \( p(z^i | I) \) directly but rather apply the Iterative Conditional Modes algorithm to \( p(z_k | z_{N(i,k)}, I) \). But \( p(z_k^j | z_{N(j,k)}, I) = p \left( I | z_{k \cup N(j,k)}^j \right) p \left( z_k^j | z_{N(j,k)} \right) \times \text{a constant with respect to } z_k^j \).
Discussion

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