International Conference on Image Processing Theory, Tools and Applications

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Abstract— `ieeetran` **is a modified version of the `IEEEtran` class. This document describes how to use `ieeetran` class with LaTeX to produce high quality typeset papers that are suitable for submission to the International Conference on Image Processing Theory, Tools and Applications. Authors are kindly requested to follow the instructions found in this document.**

Keywords— **Image processing theory, Image processing tools, Image processing applications, Template, Typesetting.**

I. INTRODUCTION

The international conference on Image Processing Theory, Tools and Applications aims at gathering challenging international researchers, innovators, educators, and practitioners in image processing theory and tools, for attending extensive educational high level materials, sharing their achievements, exchanging their experiences and discussing future orientations.

By using the `ieeetran` class file, a computer running LaTeX, and a basic understanding of the LaTeX language, an author can produce professional quality typeset research papers very quickly, inexpensively, and with minimal effort. The purpose of this document is to serve as a user guide of `ieeetran` LaTeX class.

It is assumed that the reader has at least a basic working knowledge of LaTeX. Those so lacking are strongly encouraged to read some of the excellent literature on the subject. We refer the reader to the following sites: http://tex.loria.fr and http://www.miktex.org.

Please note that your paper should normally be limited to six pages. A maximum of two additional pages can be used subject to a charge of 50 Euros/page.

II. HEADINGS

This part of the document containing its title, author names and affiliations.

A. Paper title

The paper title is inserted as follows:

```
\title{Title of the paper}
```

Line breaks (\\) may be used to equalize the length of the title lines.

B. Author names and affiliations

Author names and associated information are declared as follows:

```
\author{\authorblockN{
 Michael Shell\authorrefmark{1},
 Homer Simpson\authorrefmark{2},
 James Kirk\authorrefmark{3},
 Montgomery Scott\authorrefmark{3}
 and Eld on Tyrell\authorrefmark{4}}
\authorblockA{\authorrefmark{1}
School of Electrical a
nd Computer Engineering\\
Georgia Institute of Technology,
Atlanta, Georgia 30
332--0250\\
email: mshell@ece.gatech.edu}
\authorblockA{\authorrefmark{2}
Twentieth Century Fox, Springfield, USA\\
email: homer@thesimpsons.com}
\authorblockA{\authorrefmark{3}
Starfleet Academy, Sa n Francisco,
California 96678-2391}
\authorblockA{\authorrefmark{4}
Tyrell Inc., 123 Replicant Street,
 Los Angeles, California 90210--4321}}
```

III. ABSTRACT AND KEYWORDS

The abstract is generally the first part of a paper. The abstract text is placed within the abstract environment:

```
\begin{abstract}
This paper deals with ...
\end{abstract}
```

The IPTA papers should also include a list of (4 to 6) key words which can be declared within the `keywords` environment:

```
\begin{keywords}
    Image processing theory, Image
    processing tools, Image processing
    applications, Template, Typesetting.
\end{keywords}
```

IV. SECTIONS

Sections and their headings are declared in the usual LaTeX fashion via \section{}, \subsection{},

`\subsubsection{}`, and `\paragraph{}`. The numbering for these sections is in arabic numerals except for `\paragraph{}` which is not numbered because, generally, papers should not have such a deep section nesting depth.

V. MATHEMATICAL FORMULAS

Mathematical formulas are created using the standard LaTeX environments such as:

```
\begin{equation}
    \label{MPKeq1}
    x^2+2x+5=0
\end{equation}
```

which yields:

$$x^2 + 2x + 5 = 0 \tag{1}$$

For long equations that do not fit to the column width one can use the `\split` environment

```
\begin{equation}
\label{MPKeq2}
\begin{split}
y(t) = &\left\{\frac{\tau^n \sin n\pi}{\pi}
\int_0^\infty \frac{x^n e^{-xt}dx}
{1+2(\tau x)^n\cos n\pi+(\tau x)^{2n}}\right\}u(t)\\
&-\left\{\frac{2}{n}\tau^{-1}e^{t\tau^{-1}}
\cos\frac{\pi}{n}\}\cos\left(t\tau^{-1}
\sin\frac{\pi}{n}+\frac{\pi}{n}\right)\right\}u(t).
\end{split}
\end{equation}
```

which yields:

$$y(t) = \left\{ \frac{\tau^n \sin n\pi}{\pi} \int_0^\infty \frac{x^n e^{-xt} dx}{1 + 2(\tau x)^n \cos n\pi + (\tau x)^{2n}} \right\} u(t)$$
$$- \left\{ \frac{2}{n} \tau^{-1} e^{t\tau^{-1}\cos\frac{\pi}{n}} \cos\left(t\tau^{-1}\sin\frac{\pi}{n} + \frac{\pi}{n}\right) \right\} u(t). \tag{2}$$

VI. FIGURES

Figures are handled in the standard LaTeX manner. For example:

```
\begin{figure}[!ht]
\centering
\includegraphics[width=7cm]{coeur3.png}
\caption{Inverted pendulum.}
\label{MPKfig1}
\end{figure}
```

The `\includegraphics` command is the modern, preferred, way of including images and provides a flexible interface that makes it easy to scale graphics to size. To use it, the `graphicx` package must first be loaded:

```
\usepackage{graphicx}
```

Note that: (1) figures should be centered via the LaTeX `\centering` command. This is a better approach than using the `center` environment which adds unwanted vertical spacing; (2) the caption follows the graphic; and (3) any labels must be declared after (or within) the caption command. When referencing figure numbers in the main text (via `\ref{}`), authors should use the abbreviation "Fig." rather than "Figure" except when starting the sentence. For example:
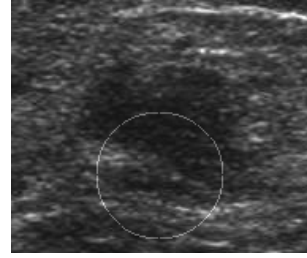

Fig. 1. Initialization.

Figure 1 shows the initialization step. Image segmentation is showed in Fig. 2.
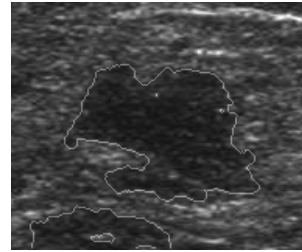

Fig. 2. Image segmentation: Convergence towards final contours.

The above figure is created using the freeware `Ipe6.0 preview23` available on the following site `http://ipe.compgeom.org/`.

Encapsulated postscript (`.eps`) figures can be generated from MATLAB by typing the following in the command window:
```
print filename.eps -depsc.
```

VII. TABLES

Tables are defined in the same manner as figures except that captions should appear above the tables. When referencing table numbers in the main text no abbreviation is used. Next we can see an example of a table:

```
\begin{table}[!ht]
\centering
\caption{Accuracy recognition.}
    \begin{tabular}{|l|c|c|c|}
    \hline
    & \multicolumn{3}{c|}
    {Classification algorithms}\\
    \cline{2-4}
    & SVM & RBF & MLP
    \hline
    Precision & 98.79\%& 83.71\%& 88.11\%\\
    Recall & 93.33\%& 81.6\%& 85.33\%\\
    \hline
    \end{tabular}
\end{tabular}
```

```
\end{table}
```

produces

Table 1. Accuracy recognition.

	Classification algorithms		
	SVM	RBF	MLP
Precision	98.79%	83.71%	88.11%
Recall	93.33%	81.6%	85.33%

VIII. CITATION

Citations are made using the standard LATEX command `\cite{}`, this will produce a number inside square brackets. Multiple citations are included within one `\cite{}` command separated with commas. *e.g.*

Segmentation systems are studied in [1], [2]. (`\cite{Pattern recognition,phdthesis}`)

For more details on restoration of images corrupted by impulse noise, the reader is referred to [3]. (`\cite{IEEE Transactions}`)

IX. REFERENCES

References are declared at the end of the article within the `thebibliography` environment.

```
\begin{thebibliography}{1}
\bibitem{}...

\bibitem{}...

\end{thebibliography}
```

Journal articles are declared as follows, where the volume number is a necessary entry and the number of the issue is optional and put in parenthesis:

```
\begin{thebibliography}{1}
\bibitem{Pattern recognition}
H. L. Premaratne and J. Bigun.
\newblock A segmentation-free
approach to recognise printed
Sinhala script using linear
symmetry.
\newblock {\em Pattern Recognition},
37(10): 2081--2089, 2004.

\bibitem{IEEE Transactions}
M. E. Yuksel.
\newblock A hybrid neuro-fuzzy filter
for edge preserving restoration
of images corrupted by impulse noise.
\newblock {\em IEEE Trans. on Image
Processing}, 15(4): 928--936, 2006.
\end{thebibliography}
```

PhD theses and conference articles are declared as follows:

```
\begin{thebibliography}{1}
\bibitem{phdthesis}
C. Tauber.
```

```
\newblock {\em Filtrage anisotrope
robuste et segmentation par B-spline snake
: application aux images échographiques}.
\newblock PhD thesis, Toulouse National
Polytechnic Institute, Toulouse-France, 2005.

\bibitem{Conference}
P. Ziaie, T. Muller and A. Knoll.
\newblock A Novel Approach to Hand-Gesture
Recognition in a Human-Robot Dialog System.
\newblock In {\em First Int. Workshops on
Image Processing Theory, Tools and
Applications (IPTA'08)},
proceedings, Sousse-Tunisia,  November 2008.
\end{thebibliography}
```

X. APPENDIX

The appendix is declared using the command `\appendix[title of appendix]`, if only one appendix is to be included. If more than one appendix will be included then we use the command `\appendices` and then we use `\section{title of appendix}` Inside the appendix subsections are not allowed.

APPENDIX I
THEOREM 1

Theorem 1: Suppose $c \geq 0$, $r(.)$ and $k(.)$ are nonnegative valued continuous functions, and suppose

$$r(t) \leq c + \int_0^t k(\tau)r(\tau)d\tau, \quad \forall t \in [0, T] \tag{3}$$

Then

$$r(t) \leq c \exp\left[\int_0^t k(\tau)d\tau\right], \quad \forall t \in [0, T] \tag{4}$$

APPENDIX II
LYAPUNOV EQUATION

The equations in the appendix are numbered with the corresponding appendix letter.

$$A^T P + PA = -Q \tag{5}$$

ACKNOWLEDGMENT

The author would like to thank all those who have helped in the realization of this document.

Acknowledgment is added as an unnumbered section using the standard LATEX command `\section*{Acknowledgment}`.

REFERENCES

[1] H. L. Premaratne and J. Bigun. A segmentation-free approach to recognise printed Sinhala script using linear symmetry. *Pattern Recognition*, 37(10): 2081–2089, 2004.

[2] C. Tauber. *Filtrage anisotrope robuste et segmentation par B-spline snake : application aux images échographiques.* PhD thesis, Toulouse National Polytechnic Institute, Toulouse-France, 2005.

[3] M. E. Yuksel. A hybrid neuro-fuzzy filter for edge preserving restoration of images corrupted by impulse noise. *IEEE Trans. on Image Processing*, 15(4): 928–936, 2006.

[4] P. Ziaie, T. Muller and A. Knoll. A Novel Approach to Hand-Gesture Recognition in a Human-Robot Dialog System. In *First Int. Workshops on Image Processing Theory, Tools and Applications (IPTA'08)*, proceedings, Sousse-Tunisia, November 2008.