LaTeX Guidelines for BBVisual Lab

Minh Hoai
BBVisual Lab, Australian Institute for Machine Learning, University of Adelaide
mh.nguyen@adelaide.edu.au

Abstract

This LaTeX guide is intended for members of BBVisual Lab. It aims to help create accurate references, and well-formatted tables and figures, ensuring consistency and professional presentation. It is not a beginner tutorial; it assumes familiarity with LaTeX and is tailored for writing papers in the CVPR and IEEE reference format.

1. References and Citation

1.1. Consistent Formatting of Bibtex Entries

In LaTeX, references are typically managed using a BibTeX file. However, it's important to ensure consistency in how conference and journal names are cited. For example, CVPR publications might appear under various names such as:

- Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition
- Proc. CVPR
- 17th IEEE Conference on Computer Vision and Pattern Recognition
- 2022 IEEE Conference on Computer Vision and Pattern Recognition

These variations often arise when BibTeX entries are imported or added carelessly.

To maintain consistency, I recommend defining a standard identifier string for each commonly cited conference or journal. In your BibTeX entries, use this identifier in place of the full name. For example, for CVPR, you might define and use an identifier like cvpr. `booktitle = cvpr` (without curly braces or quotation marks).

```
@inproceedings{Wang-Hoai-CVPR16,
   Author = {Yang Wang and Minh Hoai},
   Booktitle = cvpr,
   Title = {Improving Human Action Recognition
      by Non-action Classification},
   Year = {2016}}
```

Note that in the booktitle field above, cvpr is not enclosed in curly brackets—it's a placeholder that must be defined elsewhere. You can define it using the following commands, depending on whether you prefer the short or long format:

```
@string{cvpr = "Proc. CVPR"}

@string{cvpr = "Proceedings of the {IEEE}
        Conference on Computer Vision
        and Pattern Recognition"}
```

The following files provide predefined identification strings for commonly cited conferences and journals, such as CVPR, ICCV, and IJCV:

- http://minhhoai.net/files/shortstrings.bib
- http://minhhoai.net/files/longstrings.bib

You can choose between the short or long format by specifying which file to include in your BibTeX setup. For example, to use the short format, add the following line:

```
\bibliography{shortstrings,your_bib_file}
```

The reference section of this document is generated with shortstrings format.

1.2. Page numbers and other info

Maintain consistency in your BibTeX entries. For journal articles, use `@article` and include details such as volume, issue, and page numbers (e.g., see [1]). For conference papers, use `@inproceedings` with a minimal format that includes only: author, title, booktitle, and year. Omit page numbers, editors, volumes, venues, and similar details.

1.3. Additional Guidance for IEEE Conferences

This section provides additional instructions for preparing papers for IEEE conferences such as CVPR and ICCV.

1.4. Use `abbrvnat` Instead of `ieee`

The default bibliography style in the official IEEE LaTeX template (e.g., for CVPR or ICCV) is `ieee.bst`. However, ieee.bst is not compatible with the `natbib` package. Instead, use abbrvnat.bst, which supports advanced citation commands like `\citet`.

Use the following setup:

```
%\bibliographystyle{ieee} % Comment it out.
\setlength{\bibsep}{0pt}
\bibliographystyle{abbrvnat}
```

When combined with `bibsep = 0`, the appearance of the bibliography will closely resemble that of `ieee.bst`, while offering the flexibility and citation styles of `natbib`.

1.5. Use `\citet`

Sometimes it's necessary to refer to the authors of a previous work directly in the text. Instead of manually typing the author names, use the `\citet` command to automatically insert them. For example:

```
\citet{Wang-Hoai-CVPR16} show A.
\citet{Nguyen-etal-ICCV17} invent B.
```

produces the output:

Wang and Hoai [3] show A.

Nguyen et al. [2] invent B.

1.6. Use Natbib

To use `abbrvnat`, you must include the `natbib` package with the appropriate options. Add the following line to your preamble:

```
\usepackage[numbers,sort,compress]{natbib}
```

The options serve the following purposes:

- `numbers`: Enables numerical citations
- `sort`: Sorts multiple citations in ascending order
- `compress`: Compresses consecutive citation ranges (e.g., [1,2,3,5] → [1–3,5])

2. Tables

Use the `booktabs` package:

```
\usepackage{booktabs}
```

Avoid using vertical lines in tables, and refrain from adding horizontal lines between every row. If a horizontal line is needed, do not use `\hline`. Instead, use `\toprule`, `\midrule`, and `\bottomrule` to draw horizontal lines. Compare Table 1 and Table 2 below—Table 2 is cleaner and more professional.

Method	Frobnability	Accuracy
Theirs	Frumpy	60%
Yours	Frobbly	70%
Ours	Makes one's heart Frob	98%

Table 1. Ugly table. No need for horizontal and vertical lines.

Method	Frobnability	Accuracy
Theirs	Frumpy	60%
Yours	Frobbly	70%
Ours	Makes one's heart Frob	98%

Table 2. Nicer looking. Easier to read.

3. Figures

Always use PDF format for figures. Whether you're exporting from MATLAB, Python, PowerPoint, Excel, or another drawing tool, export directly to PDF. Avoid using PNG or JPG formats, even as intermediate steps (e.g., `MATLAB` → `PNG` → `PDF`), as they degrade quality.

Figure 1 illustrates the difference: PDF preserves sharpness because text and curves are stored as vector graphics, ensuring clarity even when zoomed in.

For Mac users, a convenient tool for cropping PDF figures is **Preview**:

1. Open the PDF in Preview.
2. Use `Tools` → `Rectangular Selection` to select the desired area.
3. Press `Cmd + K` to crop.

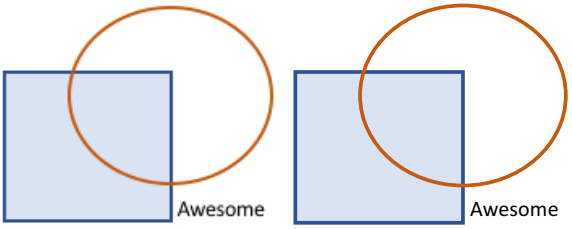

Figure 1. Left: PNG figure. Right: PDF figure. Both figures are exported from PowerPoint. Can you see the difference in quality of the two figures? Magnify the paper if you cannot.

References

[1] M. Hoai and F. De la Torre. Max-margin early event detectors. *IJCV*, 107(2):191–202, 2014. 1

[2] V. Nguyen, T. F. Y. Vicente, M. Zhao, M. Hoai, and D. Samaras. Shadow detection with conditional generative adversarial networks. In *Proc. ICCV*, 2017. 2

[3] Y. Wang and M. Hoai. Improving human action recognition by non-action classification. In *Proc. CVPR*, 2016. 2