

# Global Illumination for Fun and Profit

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## ABSTRACT

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**Index Terms:** Human-centered computing—Visualization—Visualization techniques—Treemaps; Human-centered computing—Visualization—Visualization design and evaluation methods

## 1 INTRODUCTION

This template is for papers of VGTC-sponsored conferences which are *not* published in a special issue of TVCG.

## 2 USING THE STYLE TEMPLATE

- If you receive compilation errors along the lines of “Package `ifpdf` Error: Name clash, `\ifpdf` is already defined” then please add a new line “`\let\ifpdf\relax`” right after the “`\documentclass[journal]{vgtc}`” call. Note that your error is due to packages you use that define “`\ifpdf`” which is obsolete (the result is that `\ifpdf` is defined twice); these packages should be changed to use `ifpdf` package instead.
- The style uses the `hyperref` package, thus turns references into internal links. We thus recommend to make use of the “`\autoref{reference}`” call (instead of “`Figure~\ref{reference}`” or similar) since “`\autoref{reference}`” turns the entire reference into an internal link, not just the number. Examples: Fig. 1 and Table 1.
- The style automatically looks for image files with the correct extension (`eps` for regular  $\LaTeX$ ; `pdf`, `png`, and `jpg` for  $\pdf\LaTeX$ ), in a set of given subfolders (`figures/`, `pictures/`, `images/`). It is thus sufficient to use “`\includegraphics{CypressView}`” (instead of “`\includegraphics{pictures/CypressView.jpg}`”).
- For adding hyperlinks and DOIs to the list of references, you can use “`\bibliographystyle{abbrv-doi-hyperref-narrow}`”

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(instead of “`\bibliographystyle{abbrv}`”). It uses the `doi` and `url` fields in a `bib\TeX` entry and turns the entire reference into a link, giving priority to the `doi`. The `doi` can be entered with or without the “`http://dx.doi.org/`” url part. See the examples in the `bib\TeX` file and the bibliography at the end of this template.

**Note 1:** occasionally (for some  $\LaTeX$  distributions) this hyper-linked `bib\TeX` style may lead to **compilation errors** (“`pdfendlink ended up in different nesting level ...`”) if a reference entry is broken across two pages (due to a bug in `hyperref`). In this case make sure you have the latest version of the `hyperref` package (i. e., update your  $\LaTeX$  installation/packages) or, alternatively, revert back to “`\bibliographystyle{abbrv-doi-narrow}`” (at the expense of removing hyperlinks from the bibliography) and try “`\bibliographystyle{abbrv-doi-hyperref-narrow}`” again after some more editing.

**Note 2:** the “-narrow” versions of the bibliography style use the font “`PTSansNarrow-TLF`” for typesetting the DOIs in a compact way. This font needs to be available on your  $\LaTeX$  system. It is part of the “`paratype`” package, and many distributions (such as `MikTeX`) have it automatically installed. If you do not have this package yet and want to use a “-narrow” bibliography style then use your  $\LaTeX$  system’s package installer to add it. If this is not possible you can also revert to the respective bibliography styles without the “-narrow” in the file name.

DVI-based processes to compile the template apparently cannot handle the different font so, by default, the template file uses the `abbrv-doi` bibliography style but the compiled PDF shows you the effect of the `abbrv-doi-hyperref-narrow` style.

## 3 BIBLIOGRAPHY INSTRUCTIONS

- Sort all bibliographic entries alphabetically but the last name of the first author. This  $\LaTeX$ /`bib\TeX` template takes care of this sorting automatically.
- Merge multiple references into one; e. g., use [3,5] (not [3] [5]). Within each set of multiple references, the references should be sorted in ascending order. This  $\LaTeX$ /`bib\TeX` template takes care of both the merging and the sorting automatically.
- Verify all data obtained from digital libraries, even ACM’s DL and IEEE Xplore etc. are sometimes wrong or incomplete.
- Do not trust bibliographic data from other services such as Mendeley.com, Google Scholar, or similar; these are even more likely to be incorrect or incomplete.
- Articles in journal—items to include:
  - author names
  - title
  - journal name

- year
- volume
- number
- month of publication as variable name (i. e., {jan} for January, etc.; month ranges using {jan #/}# feb} or {jan #{-}# feb})
- use journal names in proper style: correct: “IEEE Transactions on Visualization and Computer Graphics”, incorrect: “Visualization and Computer Graphics, IEEE Transactions on”
- Papers in proceedings—items to include:
  - author names
  - title
  - abbreviated proceedings name: e. g., “Proc.\ CONF\_ACRONYNM” without the year; example: “Proc.\ CHI”, “Proc.\ 3DUI”, “Proc.\ Eurographics”, “Proc.\ EuroVis”
  - year
  - publisher
  - town with country of publisher (the town can be abbreviated for well-known towns such as New York or Berlin)
- article/paper title convention: refrain from using curly brackets, except for acronyms/proper names/words following dashes/question marks etc.; example:
  - paper “Marching Cubes: A High Resolution 3D Surface Construction Algorithm”
  - should be entered as “{M}arching {C}ubes: A High Resolution {3D} Surface Construction Algorithm” or “{M}arching {C}ubes: A high resolution {3D} surface construction algorithm”
  - will be typeset as “Marching Cubes: A high resolution 3D surface construction algorithm”
- for all entries
  - DOI can be entered in the DOI field as plain DOI number or as DOI url; alternative: a url in the URL field
  - provide full page ranges AA--BB
- when citing references, do not use the reference as a sentence object; e. g., wrong: “In [4] the authors describe . . .”, correct: “Lorensen and Cline [4] describe . . .”

## 4 EXAMPLE SECTION

You can use the margins for comments while editing the submission, but please remove the margin-par comments for submission.

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## 5 EXPOSITION

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$$\sum_{j=1}^z j = \frac{z(z+1)}{2} \quad (1)$$

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Table 1: VIS/VisWeek accepted/presented papers: 1990–2016.

| year       | Vis/SciVis  | SciVis conf | InfoVis    | VAST       | VAST conf | TVCG @ VIS | CG&A @ VIS | VIS/VisWeek incl. TVCG/CG&A | VIS/VisWeek w/o TVCG/CG&A |
|------------|-------------|-------------|------------|------------|-----------|------------|------------|-----------------------------|---------------------------|
| 2016       | 30          |             | 37         | 33         | 15        | 23         | 10         | 148                         | 115                       |
| 2015       | 33          | 9           | 38         | 33         | 14        | 17         | 15         | 159                         | 127                       |
| 2014       | 34          |             | 45         | 33         | 21        | 20         |            | 153                         | 133                       |
| 2013       | 31          |             | 38         | 32         |           | 20         |            | 121                         | 101                       |
| 2012       | 42          |             | 44         | 30         |           | 23         |            | 139                         | 116                       |
| 2011       | 49          |             | 44         | 26         |           | 20         |            | 139                         | 119                       |
| 2010       | 48          |             | 35         | 26         |           |            |            | 109                         | 109                       |
| 2009       | 54          |             | 37         | 26         |           |            |            | 117                         | 117                       |
| 2008       | 50          |             | 28         | 21         |           |            |            | 99                          | 99                        |
| 2007       | 56          |             | 27         | 24         |           |            |            | 107                         | 107                       |
| 2006       | 63          |             | 24         | 26         |           |            |            | 113                         | 113                       |
| 2005       | 88          |             | 31         |            |           |            |            | 119                         | 119                       |
| 2004       | 70          |             | 27         |            |           |            |            | 97                          | 97                        |
| 2003       | 74          |             | 29         |            |           |            |            | 103                         | 103                       |
| 2002       | 78          |             | 23         |            |           |            |            | 101                         | 101                       |
| 2001       | 74          |             | 22         |            |           |            |            | 96                          | 96                        |
| 2000       | 73          |             | 20         |            |           |            |            | 93                          | 93                        |
| 1999       | 69          |             | 19         |            |           |            |            | 88                          | 88                        |
| 1998       | 72          |             | 18         |            |           |            |            | 90                          | 90                        |
| 1997       | 72          |             | 16         |            |           |            |            | 88                          | 88                        |
| 1996       | 65          |             | 12         |            |           |            |            | 77                          | 77                        |
| 1995       | 56          |             | 18         |            |           |            |            | 74                          | 74                        |
| 1994       | 53          |             |            |            |           |            |            | 53                          | 53                        |
| 1993       | 55          |             |            |            |           |            |            | 55                          | 55                        |
| 1992       | 53          |             |            |            |           |            |            | 53                          | 53                        |
| 1991       | 50          |             |            |            |           |            |            | 50                          | 50                        |
| 1990       | 53          |             |            |            |           |            |            | 53                          | 53                        |
| <b>sum</b> | <b>1545</b> | <b>9</b>    | <b>632</b> | <b>310</b> | <b>50</b> | <b>123</b> | <b>25</b>  | <b>2694</b>                 | <b>2546</b>               |

### 5.2.2 Ejector Seat Reservation

Duis autem [4]<sup>1</sup> vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat,<sup>2</sup> vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

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## 6 CONCLUSION

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<sup>1</sup>The algorithm behind Marching Cubes [4] had already been described by Wyvill et al. [7] a year earlier.

<sup>2</sup>Footnotes appear at the bottom of the column.

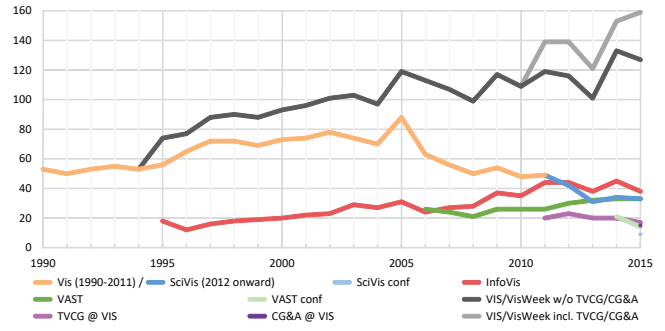


Figure 1: A visualization of the 1990–2015 data from Table 1. The image is from [1] and is in the public domain.

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### ACKNOWLEDGMENTS

The authors wish to thank A, B, and C. This work was supported in part by a grant from XYZ.

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