Bildverarbeitung für die Medizin 2027

Guidelines for the Creation of the Print-ready Contributions

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Abstract. The proceedings of the workshops *Bildverarbeitung für die Medizin* are published in a unified form electronically and as bound proceedings. LaTeX serves as the base for both types of publication. The template of this PDF can be used as a template, all files can be obtained from the pages of the workshop. In order to be able to guarantee a unified appearance and a smooth process, we ask you to comply with the specifications described here. If necessary, submission in MS Word format is possible, however, and extra fee is charged for this.

1 Introduction

The publication of the contributions to the annual workshops *Bildverarbeitung für die Medizin · Algorithmen, Systeme, Anwendungen* (BVM) is planned in two respects. In addition to the printed volume, which will be made available in print-on-demand, the contributions are also made available individually in electronic form by the publisher.

In order for your paper to be accepted for publication it is essential that the guidelines outlined in this document are followed. This document complies with the guidelines and should serve as a template for your own paper.

All manuscripts will be fully electronically combined in LaTeX to form the proceedings volume and then submitted to Springer-Verlag. As an author of a paper you support yourself and us by submitting your paper directly in LaTeX. Be sure to use the LaTeX template provided by us for this purpose. The use of MS Word and other programs should only be considered as an emergency solution. For a smooth

workflow, we recommend editing your paper using a LaTeX editor such as TeXstudio or TeXworks in a current version. Alternatively, corresponding plugins are also available for most well-known development environments. Make sure that all files are in UTF-8 character encoding to avoid display problems.

2 General information

2.1 Fees

Detailed information on the amount and composition of fees is available at `https://www.bvm-conf.org/registration/`. Extra pages and conversions of MS Word submissions by the BVM team are subject to a fee and must be paid separately by the authors at 270.00 € each including VAT. The fees are additive. As the author, you must ensure that all fees are received in a timely manner on the BVM Workshop account.

2.2 Scope of your paper

All papers at the workshop, whether presented as a talk, poster, or system demonstration, should 6 to 8 pages based on the layout provided here. Short articles must not exceed one page. Please do not change the formatting of this template, but shorten your text or reduce the size of illustrations to comply with this limit. Beginning with page 9, each additional page will incur a fee of 270.00 € (incl. VAT), which will be invoiced to the authors.

Please note that all fees (Sec. 2.1) must be paid promptly upon invoicing at the beginning of the year in order for your paper to be included in the proceedings. The decisive factor here is the length of the paper after editorial revision, not that of the submission. So, if you want to avoid shortening the text or reducing the size of your illustrations, please do not try to "trick" your way around the style guidelines, but write the text – like all other authors – according to the guidelines.

3 LaTeX-template

We would like to ask you to submit your paper in LaTeX if possible. The BVM Proceedings team provides you with this template for this purpose. It consists of a LaTeX-class (`bvm.cls`) and the LaTeX-File (`0000.tex`). *Important*: Edit only the latter and leave the `bvm.cls` file unchanged. Furthermore, you will also find a checklist in the files for a quick check of the most common sources of errors (Sec. 3.11). You can find the latest version of all files at `https://www.bvm-conf.org/authors/author-guidelines/` or `https://bvm.plri.de/`.

Please make sure that you adhere to the following guidelines. This should enable a unified appearance and facilitate the editorial post-processing. For specifics regarding abstract submissions, please refer to Section 3.7.1.

This PDF is not intended to be a LaTeX tutorial. But if you take the template as a basis, it should be possible to write your contribution without much LaTeX knowledge. However, if you have any problems with this LaTeX template, please feel free to contact us (Sec. 4.3).

3.1 Files

In order to process your contribution correctly, we need the following files. These must also be named according to the specified pattern, replace `<paper id>` with your four-digit paper id.

- Your paper as LaTeX file (`<paper id>.tex`)
- Your bibliography entries (`<paper id>.bib`)
- All used images of your paper (`<paper id>-<image name>.<format>`)
- Current reference PDF (`<paper id>.pdf`)
- The LaTeX-class (`bvm.cls`)

All files that are not named according to this pattern will not be saved by us during upload. Please use only one `.tex` and `.bib` file and be sure to leave the LaTeX-class `bvm.cls` unchanged. We accept the following image formats, vector graphics in EPS or PDF format are preferred:

- `eps`
- `pdf`
- `png`
- `jpeg`

Your files must be encoded in the UTF-8 character encoding to avoid display problems. This character encoding can be explicitly set in the LaTeX editors, but is usually the default when using a current operating system.

For EPS and PDF files ensure that all used fonts are embedded and avoid using Type-3 fonts.

3.2 Compiling

To create a PDF from the LaTeX file, compile it with `pdflatex`. This is the default setting in most editors.

For the bibliography, we use the package `BibLaTeX` with `Biber` as backend. Depending on the default settings of your editor, you may need to change this.

3.3 General format and page layout

The formatting of the text such as page flip, page numbers, font size and type is predefined and done automatically. Also the spacing for chapter and subchapter headings is given by LaTeX. Please do not use your own formatting.

The first paragraph in a (sub)chapter is not indented. New paragraphs in a section are automatically indented at the beginning. Please do not insert manual line breaks

with \newline or \\. In certain environments like tables or formulas \\ has further function and is still allowed there.

Emphasis can be set using \emph, but these emphases are very sparse and should never be used inside LaTeX commands such as \title or \section. To ensure a consistent appearance, please do not use custom text formatting such as \textbf or similar. The tabular-environment is an exception: use \textbf instead of \emph inside this environment, but only use this comamnd for remarkable values and not the header.

Units (m, mm, etc.) must not be italicized. To prevent this from happening inside the math mode you can use the command \text. To bind the unit to the numeric value with the correct spacing, please use the command \ts.

For readability reasons, please refrain from using footnotes[1] and other text annotations (these can be inserted in parentheses directly into the text).

3.4 Preamble

Do not change anything in the preamble (anything above \begin{document}) except for specifying your bibliography file. You can specify the bibliography file using the \addbibresource{<paper id>.bib} command. Any other changes will be lost when the book is created.

3.5 Language

You can choose to write your paper in English or German. For the latter, please use the rules of the new spelling. Select the language at the beginning of the document, \selectlanguage{ngerman} for German and \selectlanguage{english} for English. Depending on your choice, you must be careful to use the correct quotation marks. The German ones are identified with \glqq ... \grqq and the English ones with \elqq ... \erqq. In English, \title, \subtitle, and \titlerunning are to be capitalized except for the first word, proper names, abbreviations, articles (a, an, the, . . .), conjunctions (and, but, or, . . .), and prepositions (in, on, at, . . .). For hyphenated word (well-known, cost-effective, . . .) only capitalize the first word, and decapitalize subsequent words. The chapters of the individual contribution as well as the titles of the bibliography entries, however, are to be written in lower case except for the first letter, proper names and abbreviations (*decapitalized*). Do not place periods at the end of titles or chapter headings.

3.6 Cover page

3.6.1 Paper title. Specify the title of your paper using the \title command. Avoid separations within the title with, for example, a colon or a hyphen. Instead, use the optional subtitle with the command \subtitle. The only exception is the

[1] If footnotes are nevertheless unavoidable, use the command \footnote and do not insert spaces in front of the footnote. For acknowledgements or disclaimers, instead use the acknowledgement or disclaimer environment at the end of the paper

“Abstract:” for abstract submissions (Sec. 3.7.1). Title and subtitle should be capitalized in English (Sec. 3.5). Do not use abbreviations as titles, but rather as subtitles. For example, the title should be „Transformers for 3D Medical Image Segmentation: UNETR“, not „UNETR: Transformers for 3D Medical Image Segmentation“.

From the given title, the LaTeX class automatically generates the entries in the header. If you get the text *Title Suppressed Due to Excessive Length* there instead of your title, please define a shortened title with the command `\titlerunning` in the header of your document and check if it now fits into the header.

Do not use commands inside of `\title`, `\subtitle`, and `\titlerunning`.

3.6.2 Naming of authors and institutes. There are many ways to name the authors and institutes involved. In order to ensure a consistent naming in all contributions and the correct structure of the list of authors, please do not use additional packages such as `inst` or similar. Instead, please proceed as follows:

Naming of institutes. All participating institutes must be named within the `\institute` command. If multiple institutes are involved, each institute must be preceded by an ascending number with `\inst` (example: `\inst{1} Peter L. Reichertz Institut für Medizinische Informatik \\`). If only one institute is involved, omit the number accordingly. Separate different institutes by a line break (\\). Name the institutions briefly enough to take up only one line each (if possible).

Naming of authors. Specify all authors involved using the `\author` command. To be able to guarantee a unified appearance and further functions, make sure to name each author according to the following pattern: `\fname{Firstname~Initials.} \lname{Surname} \inst{number(s)}`. In order to ensure a correct list of authors, `\lname` must contain the *entire surname*. If you want to add your ORCID, you can use the optional argument of `\lname`, e.g. `\lname[ORCID]{Surname}`. Abbreviate possible second names with initials and separate them from the first name with a tilde (~). The tilde between the first name and initials prevents the name from being split into two lines.

Use `\inst` to assign the authors to the corresponding institutes. Multiple entries are possible, e.g. `\inst{1,2}`. If only one institution is involved, omit `\inst` here as well.

After the institute, provide the metadata for the authors’ contract and required by Springer. Springer displays this information on SpringerLink. You can see the proceedings of 2025 for examples[2]: select any contribution and go to author information. You need to provide `\affiliation`, `\authorsEmail`, `\street`, `\housenumber`, `\zipcode`, `\city`, and `\country` for each author in this order. Use `\isResponsibleAuthor` to select the responsible author for the authors’ contract. You can use `\isResponsibleAuthor` only once.

[2] https://link.springer.com/book/10.1007/978-3-658-47422-5/

Separate each authors with a comma (no line break) and name the main author first. You can use `equalContribution` for shared main authorship. Place this command after the institute, e.g. `\inst{1,2}\equalContribution` or after `\lname` if there is only one institute.

As (co-)author of several papers, please make sure that you are mentioned in each paper with your first, middle and last name in the same way, otherwise you will appear several times in the list of authors.

Additionally, specify a short form of the authors with `\authorrunning`, this will appear in the header of the paper. Enter only the surname here. Depending on the total number of authors involved, use the following formatting.

- *one author*: `\authorrunning{Deserno}`
- *two authors*: `\authorrunning{Deserno \& Handels}`
- *three authors*: `\authorrunning{Deserno, Handels \& Maier}`
- *more than three*: `\authorrunning{Deserno et al.}`

Email. With the command `\email` you specify the email of the corresponding author and please write it in all lower case. It is not possible to specify multiple email addresses.

3.7 Outline of the paper

When structuring your paper, a distinction is made between an abstract and an article.

3.7.1 Abstract as proceedings paper. An abstract as a BVM proceedings paper follows the same style template as all BVM proceedings papers. However, the abstract should be structured as follows:

Abstract
References

An abstract paper must not exceed one page. The title of the paper must start with "Abstract:" (also for German-language contributions) followed by the actual title. The LaTeX environment `abstract` may *not* be used in this case. Care must be taken that the title does not take up more than two lines. A subtitle is allowed and must not exceed two lines either. The abstract itself is to be kept without paragraphs and footnotes. Do not use outlines like in an abstract (e.g. material and methods, results, etc.). We also ask you to refrain from using acknowledgements and disclaimers.

3.7.2 Article as proceedings paper. Each article as a BVM proceedings paper must be organized in its basic structure as follows:

Abstract
1. Introduction
2. Materials and methods
3. Results

4. Discussion
   Acknowledgements/Disclaimers
   References

The abstract paragraph starts with “Abstract.” (in German “Kurzfassung.”). This formatting is achieved automatically by using the LaTeX environment `abstract`:

```
\begin{abstract}
...
\end{abstract}
```

For acknowledgements and disclaimers, please use the `acknowledgement` and `disclaimer` environments at the end of the document. The formatting is done automatically. Abstract, Acknowledgements, Disclaimers and Bibliography are not assigned a number. The sections Introduction to Discussion are automatically numbered and should – if necessary – be subdivided into subsections. The order given in LaTeX

1. `\section`,
2. `\subsection`,
3. `\subsubsection`,
4. `\paragraph`.

must be strictly adhered to. Using the commands `\subsubsection` or `\paragraph` directly after a `\section` is not allowed – even if it saves space. This will be undone during editing and your text will have to be shortened.

For information on internal references to other sections see Sec. 3.11.

3.8 Tables and figures

Each figure or table must have a (sub)caption, use the `\caption` command for this. The numbering is done automatically. Figures and tables must be explicitly referred to in the text, e.g. at the end of the sentence (Tab. 1). For more on references, see Section 3.11. The statement that is to be visualized with the object must also be explicitly stated in the text. Sentences like: “Figure 1 shows the result.” alone are not sufficient.

Tables are set without grid lines. The table contains exactly one header line, one footer line, and one line between the header and the table body. No additional lines are allowed. Table headers must not be formatted in bold. Use `\textbf` only to highlight specific values. Columns should preferably be aligned to the left. Use other alignments only when absolutely necessary. Wide tables should be expanded to the full text width. The corresponding command sequence can be seen in the LaTeX source code of this document and reads:

```
\begin{tabular*}{\textwidth}{@{\extracolsep\fill}llll}
...
\end{tabular*}
```

Tab. 1. Example of a table with multiple rows and columns.

	column 2 and 3		column 4 and 5		column 6 and 7	
row 2 and 3	value	value	value	value	value	value
	value	value	value	value	value	value
row 4 and 5	value	value	value	value	value	value
	value	value	value	value	value	value

You can use Table 1 as a template for your own. It is also an example of using the packages *multicol* and *multirow*.

Smaller objects can be placed arbitrarily (Fig. 1). Use the `SCfigure` or `SCtable` environments from the *sidecap* package. The text is aligned next to the objects. Please use this for images with a width smaller than `0.7*\textwidth`.

Fig. 1. Example of a small image where the caption is placed next to the image.

Larger tables or figures should only be placed at the top (preferred position for tables) or bottom (preferred position for images) of the page. This provides a unified appearance for the proceedings, which also increases the readability of the individual papers. Please note that if images and tables are placed at the top of the page, the label will be placed above the object. If, on the other hand, the objects are placed at the bottom of the page, the caption is placed below them. In your LaTeX source code, the `\caption` command must be in the right place. Captions should be written in LaTeXsource code if possible and should not be included into the image. They should consist of at least one complete sentence and end with a period/fullstop. Subcaptions (e.g. Fig. 2a), should also end on a period/fullstop.

In LaTeX you can include graphics (preferably in EPS or PDF-format) directly into the document. Please make sure that all fonts are embedded in the image and avoid using Type-3 fonts. Use the LaTeX command `\includegraphics` from the LaTeX package *graphicx* for this. If you want to combine multiple images or tables under one caption, use the `subfigure` and `subtable` environments provided by the *subcaption* package (Fig. 2). These also allow subcaptions and references to individual subimages (Fig. 2b). Further examples for tables can be found in the code.

For figures, an alt text for screen readers must be specified within the figure environment using the command `\altText{...}`. The use is analogous to the use of `\caption`. The aim of alt texts is to provide visually impaired readers with the

same information that sighted readers receive. Good alt texts clearly explain the key elements of a figure in the context in which it appears. Springer presents guidelines and recommendations in the guide *How to Write Good Alt Text*[3].

3.9 Formulas

Simpler formulas like $x + y = z$ can appear continuously in the text, longer or important mathematical formulas are center-aligned within the page

$$\sin(x) = \sum_{n=0}^{\infty} (-1)^n \frac{x^{2n+1}}{(2n+1)!} \tag{1}$$

$$= \frac{x}{1!} - \frac{x^3}{3!} + \frac{x^5}{5!} \mp \cdots \tag{2}$$

and numbered consecutively on the right margin at the level of the equal sign. Use the `align` environment of the *amsmath* package for this. This also allows multiline formulas. Please refrain from using a colon directly before and a period as the end of the sentence within the equation. Mathematical formula characters and symbols are *italicized*, but function names and other name identifiers are not. Units are bound to the numeric value at the correct spacing with the LaTeX macro `\ts`. The source code of Equation 1 and 2 give examples how this can be set with LaTeX.

3.10 Algorithms

Using the packages *algorithm* and *algorithmicx* with the *algpseudocode* layout you can illustrate an algorithm as pseudocode, e.g. the Euclidean algorithm (Alg. 1). Inside the `algorithmic` environment you can define the algorithm using special commands. Please always set this environment inside the `algorithm` environment. It treats the algorithm as float object and lets you set a heading and label. Algorithms should be placed at the top of the page if possible.

(a) One. **(b)** Two. **(c)** Three.

Fig. 2. Example of including multiple graphics under one heading.

[3] `https://www.springernature.com/gp/authors/publish-a-book/manuscript-guidelines/`

Alg. 1 Euclid's algorithm

```
1: procedure EUCLID(a, b)                    ▷ The g.c.d. of a and b
2:     r ← a mod b
3:     while r ≠ 0 do                        ▷ We have the answer if r = 0
4:         a ← b
5:         b ← r
6:         r ← a mod b
7:     end while
8:     return b                              ▷ The gcd is b
9: end procedure
```

3.11 Bibliography and internal references

If you want to set a cross-reference (e.g. to a figure or table) within the document, you must never write the number directly into the text. LaTeX numbers all objects automatically, so the numbers may change during editing. Therefore *always* use the following commands.

For cross-references to figures, tables, sections, or formulas, you must set a marker for a cross-reference at the appropriate place in the LaTeX code with `\label`. It is important that this is always *after* `\caption` or `\section` and never before.

Literature references to entries from your bibliography file are created using `\cite`. We recommend using a protected space (~) before the command to prevent line breaks, e.g., `text~\cite{...}`. Please create the entries in your bibliography file in the known BibTeX or BibLaTeX format. You can use and adapt the `0000.bib` file used for the present sample document. Remember to also name your references in the form `<paper id>-<entry name>`. The small sample bibliography of this template document includes as references a journal article [1], two books [2, 3], a book chapter [4], a BVM proceedings paper [5], and a documentation [6]. Combine references to multiple literature entries in a row in one `\cite` command like `\cite{0000-01,0000-02}`.

Please make sure to use the correct category for each source in your `*.bib` file and fill at least all mandatory fields. Please include only those entries in the `*.bib` file that you also use for your contribution, `*.bib` files with your "Collected Works" make editing more difficult and are sources of avoidable errors.

Due to the limited length of the paper, you should also consider the following tips when preparing the bibliography:

- Limit yourself to the most important work that is necessary for the understanding of your contribution.
- Abbreviate journal names according to MEDLINE coding[4].
- For books, mention only the main title.
- Mention only the name of the publisher without the word "publisher " itself.
- Reference papers from previous BVM workshops as proceedings articles in the journal [5].

[4] `https://ftp.ncbi.nih.gov/pubmed/J_Medline.txt`

- In English, decapitalize the titles according to common rules (Sec. 3.5).

Create the bibliography with `\printbibliography` at the end of your document. The formatting is automatic, please do not change it.

As mentioned, all LaTeX sources are combined into one proceedings document. To avoid collisions in case of cross-references in the document, all internal references (`\label`, `\ref`, `\cite` etc.) must be tagged with the *BVM paper id* followed by "-". This also applies to the file names of figures and bibliography entries, e.g. `\label{0000-...}`.

Please avoid filler words like "see" or "cf.", instead just put the reference in brackets (Fig. 1). In this case, please abbreviate the words as follows: Figure with Fig. (ger. Abb.), table with Tab. (ger. Tab.), equations with Eq. (ger. Gl.), algorithms with Alg. (ger. Alg.) and section with Sec. (ger. Abschn.). If, on the other hand, you use a reference in the body text, please write it out. Please cite literature references without round brackets [1].

3.12 Packages and macros

Do not use your own packages, but limit yourself to the following selection:

- *inputenc, fontenc*: Correct encoding (UTF-8)
- *babel*: Extended language capabilities
- *biblatex*: Improved bibliographies
- *csquotes*: Citation
- *newtxtext, newtxmath*: Font selection
- *amsmath, amsfonts, amssymb, amsxtra*: Provision of mathematical environments, symbols and commands
- *color*: Definition of own colors
- *graphicx*: To embed images
- *caption, subcation*: Providing the *subfigure* and *subtable* environments
- *sidecap*: Providing the *SCfigure* and *SCtable* environment
- *footmisc*: Footnote placement
- *multicol, multirow*: For table editing
- *algorithm, algorithmicx*: Algorithms as pseudo code
- *hyperref*: Including links

All packages are included inside the class and should be included in every LaTeX default installation. If this is not the case, you can find and download all packages from `https://ctan.org/`.

If you are used to working with *PSTricks* normally, please create a separate LaTeX document for each image, use PSTricks to create only the image in it, output it as a `*.ps` file, and use *Ghostscript* to create a `*.eps` file with bounding box, which you can then include in your contribution document as described in Section 3.8.

In general, use your own macros (`\newcommand`) as sparingly as possible. If you need your own macro definitions, write them directly in your `*.tex` file after `\begin{document}` and include your own name in the command name, creating

a unique macro name to avoid multiple definitions between contributions. Also, please avoid defining macros that you do not need in your document. Do not redefine macros using `\renewcommand` under any circumstances.

4 Submission

4.1 Submission for review

This template was designed for the submission of print-ready contributions. Of course, it can also be used for the submission for peer review. However, please note that your paper must be anonymized for review. To do this, simply comment out `\author`, `\authorrunning`, `\institutes`, and `\email` and compile the file as a PDF. You can upload your PDF file via `https://www.bvm-conf.org/authors/submission/`. Please note the document structure required for submission, which differs somewhat from the proceedings format.

4.2 Submission of print-ready contributions

The submission of print-ready contributions is done via `https://bvm.plri.de/`. To log in, please use the email you provided and the password that was sent to you.

Before uploading, check the checklist again with the most common errors and specifics.

Create a *ZIP* archive containing all files mentioned in Section 3.1 (*without subfolders!*) for upload to our server. If the required file(s) are missing from the ZIP archive, your contribution will be rejected, as well as if file names do not match the default or if folders are included in the ZIP archive. The checklist does not need to be uploaded as well.

During upload, the contents of your ZIP archive will undergo automatic checks for compliance with these guidelines. If you receive error messages, please correct the noted item(s) and resubmit your ZIP archive.

4.3 Troubleshooting

If you have any questions or problems, please contact the BVM Proceedings team at email `support.bvm@plri.de`. If you encounter any problems using our LaTeX template, please feel free to contact us. The higher the percentage of contributions submitted in LaTeX, the easier and better the book project will be.

Disclaimer. For disclaimers, please use the `disclaimer` environment.

Acknowledgement. Please write your acknowledgements within the `acknowledgement` environment.

References

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