# iaria
# An Unofficial IARIA LaTeX Class

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Version 0.6

**Abstract**

The `iaria`–class provides a convenient environment for writing IARIA
scholary publications. This version also implements full IARIA specifications
for citation style, which can only be templated for a specific technological
combination like latex/pdflatex in combination with biblatex using a biber
backend.

## 1   Installation

The `zip` or `tar.gz` file comes with a `iaria.ins` and a `iaria.dtx` file included
which contains the LaTeX stuff.

To extract the class files call:

```
$ latex iaria.ins
```

This call will extract all LaTeX specific files to the current directory. You can
either use the files for a single cv project or you can integrate the files into your
TeX installation.

If you just want to use iaria for a single curriculum vitae project, the simplest way
is just to copy the generated files to the folder of the project.

If you want to integrate iaria into your TeX installation, create a directory
`tex/latex/iaria` beneath your TeX installation (e.g. beneath `/usr/share/texmf`)
and copy all files from the current directory there. Now call:

```
$ mktexlsr
```

to update the file–cache of LaTeX.

Hint: The iaria distribution contains a sample docstrip configuration in `docstrip.cfg`
via which files can be distributed automatically to their correct positions inside a
LaTeX installation. Feel free to adapt this file to your environment and afterwards
call `latex iaria.ins` to install the package to its right place.

## 2 Templates

For a quick start the iaria distribution contains document templates. The templates can be found in the `iaria-example-neumann.zip` file.

## 3 Documentclass

documentclass iaria This package provides the documentclass `iaria`. The documentclass supports the following options:

- `conference` Passed to IEEEtran

- `a4paper` Passed to IEEEtran

- `subfig` Loads subfig package with IARIA style settings

- `subcaption` Loads subcaption package with IARIA style settings

- `flushend` Activate flushend package (compatible with arXiv build process)

- `pbalance` Activate pbalance package (incompatible with arXiv build process)

A Remark about two-column document balancing on the last page: The flushend package is recommended, because it works within the arXiv automated build process. However, flushend has a major incampatibility with package lineno, which is, e. g., transitively loaded by package mindflow. Thus, in case when flushend does not have any effect, check whether one of your packages loads lineno. Usually you are stuck with your packages and, thus, will instead be forced to switch from flushend to pbalance. Please be aware that pbalance works great and has high compatibility, but unfortunately it will not have any effect within the arXiv automated build process. In case of both, a somehow needed lineno package and an intended arXiv upload, I recommend to do without two-column balancing on the last page and just to stay away from both flushend and pbalance, in order to ensure that your paper is layouted identically in IARIA submission and arXiv upload. I hope this remark proves helpful, it took me some nerve to find out.

There is also another important difference between flushend and pbalance: the handling of footnotes on the last page. Flushend provides a decent result, but the result of pbalance is incomprehensible. I strongly recommend avoiding footnotes on the last page. If you absolutely need footnotes on the last page, consider staying away from two-column balancing on the last page.

About subfigures: Both well-known packages subfig and subcaption can be used. However, they are not compatible with each other and we can either load one or the other. Both require dedicated style settings to be compatible with IARIA formatting rules. Thus, the document class provides options to load them for you with correct settings.

In order, to configure table/figure captions correctly for IARIA requirements, the package caption is used. There would be other options to achieve this, however,

the babel package is disruptive to the table label – using package caption provides stability to the label configuration against babel intervention. There are minor downsides of using caption package: it results in a warning about unknown document class that cannot be suppressed, and if you do not use any tables or figures, caption package also results in a warning about "unused captionsetup" that cannot be suppressed, either.

# 4    Requirements

We instrument several other LaTeX packages for different purposes, which must be available under your installation.

- IEEEtran
- biblatex
- extdash
- flushend
- fontenc
- graphicx
- hyperref
- inputenc
- orcidlink
- pbalance
- subcaption
- subfig
- times
- url
- xcolor
- xpatch

# 5    The Code

```
1 @echo off
2
3 rem *************************************************************************
4 rem * author: Christoph P. Neumann
5 rem *************************************************************************
6 cd /d "%~dp0"
7
```

```
 8 echo == ..\examples\* ==
 9 for /D %%D in (..\examples\*) do (
10  echo == %%D ==
11  xcopy /Y ".\*.cls" "%%~D"
12 )
13
14 pause
15 %# Copyright (c) 2023-2025 Christoph P. Neumann
16
17 % !TeX spellcheck = en-US
18 % LTeX: language=en-US
19 % !TeX encoding = utf8
20 % !TeX program = pdflatex
21 % !BIB program = biblatex / biber
22
23 % DISCLAIMER: Only for latex/pdflatex in combination with biblatex using a
24 % biber backend. (And neither for XeLaTeX or LuaTeX nor for bibtex or natbib.)
25 % Because to set the required bibliography configuration, the biblatex
26 % package needs to be loaded.
27 % I also need to adjust formatting of ONLINE entries, thus, I have to make
28 % some assumptions to rely on. And inputenc must be loaded before biblatex.
29 % Thus, inputenc, fontenc and biblatex with backend=biber are hard coded part
30 % of this template.
31 % I could remove these from the cls and make this part of the example.tex,
32 % but then it would be less foolproof in my opinion.
33 % I apologize for this opinionated design decission to anyone who is
34 % jeopardised by it.
35 %
36 % I also had to decide whether to hardcode required usage of IEEEtran
37 % "conference" option into my class. I decided against it.
38 % Thus, it is required to use IARIA class like this:
39 % \documentclass[conference]{iaria}.
40 % The iaria class passes all class options (like "conference") to IEEEtran.
41 % The reasoning: There might be a future use case (speculatively) to pass
42 % IEEEtran options like "a4paper", for IARIA purposes (?)
43 % For now, IARIA requires IEEE "conference" option, only.
44
45 \NeedsTeXFormat{LaTeX2e}
46
47 \ProvidesClass{iaria}[2025/01/16 IARIA template v0.6]
48
49 % Define marker counter for options (counter are global in latex):
50 \newcounter{iaria@subfigtracker}
51 \newcounter{iaria@subcaptiontracker}
52 \newcounter{iaria@pbalancetracker}
53 \newcounter{iaria@flushendtracker}
54
55 % Declare options:
56
57 \DeclareOption{subfig}{
58   \setcounter{iaria@subfigtracker}{1}
59   \typeout{iaria class: subfig option is set (use subfloat command).}
60 }
61 \DeclareOption{subcaption}{
```

```
62   \setcounter{iaria@subcaptiontracker}{1}
63   \typeout{iaria class: subcaption option is set (use subfigure command).}
64 }
65
66 % IEEE option onecolumn will be ignored
67 \DeclareOption{onecolumn}{\OptionNotUsed}
68
69 \DeclareOption{pbalance}{
70   \setcounter{iaria@pbalancetracker}{1}
71   \typeout{iaria class: pbalance option is set.}
72 }
73 \DeclareOption{flushend}{
74   \setcounter{iaria@flushendtracker}{1}
75   \typeout{iaria class: flushend option is set.}
76 }
77
78 % We'll pass any document class options along to the underlying class
79 % (required IEEE options: conference! For IARIA purposes.)
80 \DeclareOption*{%
81   \PassOptionsToClass{\CurrentOption}{IEEEtran}
82 }
83
84 % Now we'll execute any options passed in
85 \ProcessOptions\relax
86
87 % Instead of defining each and every little detail
88 % required to create a new document class,
89 % you can base your class on an existing document class.
90 \LoadClass{IEEEtran}
91
92 % Now paste your code from the preamble here.
93 % Replace \usepackage with \RequirePackage.
94 % (The syntax for both commands is the same.)
95
96 \RequirePackage{times} % Times New Roman
97
98 % inputenc must be loaded before biblatex
99 \RequirePackage[utf8]{inputenc}
100
101 % https://tex.stackexchange.com/questions/664
102 % /why-should-i-use-RequirePackaget1fontenc
103 % Has to be loaded AFTER any font packages.
104 % See https://tex.stackexchange.com/a/2869/9075.
105 \RequirePackage[T1]{fontenc}
106
107 \RequirePackage{graphicx}
108 \RequirePackage{xcolor}
109
110 \RequirePackage{url}
111 \RequirePackage{orcidlink}
112 \RequirePackage{hyperref}
113 \hypersetup{hidelinks,unicode}
114
115 % Diferring from IEEE, IARIA requires
```

```
116 % in bibliography: 6+ authors as first author et al.
117 % in \citeauthor: any case of et al. with just first author et al.
118 \RequirePackage[
119   defernumbers=true,
120   style=ieee,
121   backend=biber,
122   url=false,
123   hyperref,
124   maxnames=5,
125   minnames=1,
126   maxcitenames=2,
127   mincitenames=1
128 ]{biblatex}
129
130 % Due to applied option defernumbers=true:
131 % Prevent citations in the references are being numbered as '0' in ArXiv
132 % https://tex.stackexchange.com/questions/463556
133 % /all-the-citations-in-the-references-are-being-numbered-as-0-in-arxiv-while-upl
134 \makeatletter
135 \let\blx@rerun@biber\relax
136 \makeatother
137
138 % When using multiple citation keys in the same \cite command,
139 % change "[1], [5], [7]" to IARIA-required "[1][5][7]":
140 \renewcommand*{\multicitedelim}{}
141
142 \renewcommand*{\bibfont}{\small}
143
144 % Diferring from IEEE, IARIA requires, for ONLINE entries,
145 % no point but a comma between author and title:
146 % For style=ieee
147 \DeclareBibliographyDriver{online}{%
148   \usebibmacro{bibindex}%
149   \usebibmacro{begentry}%
150   \usebibmacro{author/editor+others/translator+others}
151   \setunit{\labelnamepunct}\newblock
152   \usebibmacro{title}%
153   \newunit
154   \printlist{language}%
155   \newunit\newblock
156   \usebibmacro{byauthor}%
157   \newunit\newblock
158   \usebibmacro{byeditor+others}%
159   \newunit\newblock
160   \printfield{version}%
161   \newunit
162   \printfield{note}%
163   \newunit\newblock
164   \printlist{organization}
165   \newunit\newblock
166   \usebibmacro{date}%
167   \newunit\newblock
168   \iftoggle{bbx:eprint}
169   {\usebibmacro{eprint}}
```

```latex
170    {}%
171    \newunit\newblock
172    \usebibmacro{url+urldate}%
173    \newunit\newblock
174    \usebibmacro{addendum+pubstate}%
175    \setunit{\bibpagerefpunct}\newblock
176    \usebibmacro{pageref}%
177    \usebibmacro{finentry}}
178
179 \makeatletter
180 % Diferring from IEEE, IARIA requires non-abbreviated references:
181 \renewcommand{\fnum@figure}{Figure~\thefigure}
182 % Diferring from IEEE, IARIA requires 14 point bold Times for the title
183 \renewcommand{\title}[1]{\renewcommand{\@title}{\bfseries\Large #1}}
184 % Diferring from IEEE, IARIA requires "Keywords" instead of "Index Terms":
185 \renewcommand\IEEEkeywordsname{Keywords}
186 \makeatother
187
188 \RequirePackage{xpatch}
189 % Diferring from IEEE, IARIA requires a hyphen after "Keywords"
190 % instead of an  emdash:
191 \xpatchcmd\IEEEkeywords{---}{-}{}{}
192
193 % Diferring from IEEE, IARIA requires also the keywords in Italic
194 % (and Bold)(and lower case!):
195 \let\oldIEEEkeywords\IEEEkeywords
196 \def\IEEEkeywords{\oldIEEEkeywords\itshape\ignorespaces}
197
198 \makeatletter
199 \renewcommand{\IEEEauthorblockN}[1]{%
200 % copied from IEEEtran.cls:
201    \relax\@IEEEauthorblockNstyle% set the default text style
202    \gdef\@IEEEauthorblockXinterlinespace{0pt}% disable strut for spacer row
203    \if@IEEEprevauthorblockincol\expandafter\@IEEEauthorblockNtopspaceline\fi
204    \global\@IEEEprevauthorblockincoltrue% we now have a block in this column
205    \gdef\@IEEEauthorblockXinterlinespace{\@IEEEauthorblockNinterlinespace}%
206    \large
207    #1%
208    \crcr}
209 \makeatother
210
211 % IARIA requires to bring the table caption in the same line of "Table I"
212 \usepackage{etoolbox}
213 \makeatletter
214 \patchcmd{\@makecaption}
215    {\\}
216    {.\ }
217    {}
218    {}
219 \makeatother
220
221 % caption is compatible with babel that intervenes with tablename
222 \RequirePackage{caption}
223 % IARIA requires table caption to be
```

7

```latex
224 % above, centered, with upper case label ('TABLE'), and small caps text.
225 \captionsetup[table]{
226   name=TABLE,
227   position=above,
228   justification=centering,
229   labelsep=period,
230   textfont={footnotesize, sc},
231   labelfont=footnotesize}
232 % IARIA requires figure caption to be
233 % below and centered
234 \captionsetup[figure]{
235   position=below,
236   justification=centering,
237   labelsep=period,
238   font={footnotesize,rm}}
239
240 % IARIA subfigure captions require parentheses and footnotesize:
241 \ifnum\value{iaria@subfigtracker}=1
242   \typeout{iaria class: load subfig package (use subfloat command).}
243   \RequirePackage[caption=false,font=footnotesize]{subfig}
244 \fi
245 \ifnum\value{iaria@subcaptiontracker}=1
246   \typeout{iaria class: load subcaption package (use subfigure command).}
247   \RequirePackage{subcaption}
248   % IARIA requires subfigure caption to number them with
249   % parentheses around latin chars (like "(a)" and "(b)")
250   \captionsetup[subfigure]{labelformat=parens,font=footnotesize}
251 \fi
252
253 % Balance/level columns at the last page / in bibliography
254 % DISCLAIMER: No solution is a 100%/perfect one!
255 % Mainstream option: pbalance (see https://ctan.org/pkg/pbalance)
256 % BUT: incompatible with arxiv automated process (!)
257 \ifnum\value{iaria@pbalancetracker}=1
258   \typeout{iaria class: load pbalance package.}
259   \RequirePackage{pbalance}
260 \fi
261 % Flushend => works with arxiv, but major incampatibility with lineno
262 % (and, thus, also with mindflow et al.)
263 \ifnum\value{iaria@flushendtracker}=1
264   \typeout{iaria class: load flushend package.}
265   \RequirePackage{flushend}
266 \fi
267
268 % ==========================================================
269 % Packages with recommendation to load them last:
270
271 % Allows to hyphenate a word that contains a dash:
272 % https://stackoverflow.com/questions/2193307
273 % /how-do-i-get-latex-to-hyphenate-a-word-that-contains-a-dash
274 % Use \-/ for a breakable dash that does not prevent the
275 % remainer of the word to be hyphenated.
276 \RequirePackage[shortcuts]{extdash}
277 % ==========================================================
```

```
278
279 % Finally, we'll use \endinput to indicate that LaTeX can stop reading
280 % this file. LaTeX will ignore anything after this line.
281 \endinput
```