iaria
An Unofficial IARIA LaTeX Class

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Version 0.8

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-ctan.zip` file.

Especially beginners should NOT start from scatch! Use the example file! The iaria package assumes that the latex user has former experience with IEEEtran! For example, the formatting of the author block is not documented here, please refer to the IEEEtran documentantion. For shared affiliations, there is a formatting option called "alternate long format", which you can find in the well-known IEEEtran_HOWTO.pdf; it is also the superior option for IARIA papers with shared affiliations.

BEWARE: If you are completely new to LaTeX, then do NOT use iaria class for your first LaTeX experiment, but please use the IARIA Word template. The same advice is true when you have no former IEEEtran experience and when you are not willing to acquire IEEEtran knowledge on your own.

DISCLAIMER: Using this package still requires that you additionally MUST read the IARIA formatting guide (www.iaria.org/formatting.doc) as well as the IARIA editorial rules (www.iaria.org/editorialrules.html). Simply using this package does not relieve you of your responsibility! This applies to all aspects: IARIA style and LaTeX/BibTeX know how (like interfering packages) as well as IEEEtran implications (like conference mode, author block, shared affiliation, or cite compression). In case of doubt, you are required to understand the content of the iaria.cls file, because before this community-provided package you had to make all these adjustments yourself.

3 Documentclass

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

- `conference` Passed to IEEEtran (i. a., it suppresses page numbers)

- `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)

BEWARE: Usually, you will/must provide IEEEtran option "conference" to the iaria package, both for IARIA conferences AND for IARIA journals! Because for IARIA, the formatting rules are the same for conferences and journals – in contrast to IEEE. Its conference style is the base for IARIA formatting. The example file (see above) prominently applies this option.

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.

There is an open issue about cite compression. Currently, numeric-comp is used instead of ieee-comp. This results in "[7-9]" for cite compression. IARIA would prefer IEEE-style cite compression "[7]-[9]", which could be accomplished with ieee-comp, however, ieee-comp is currently not available on Overleaf. Due to the significance of Overleaf to many authors, this has been a hard choice. The cite compression is activated for biblatex with option citestyle, which must be given at package load time, and is not supported later on by command ExecuteBibliographyOptions. Thus, you are bound to my chosen compromise. In case of doubt, you might consider to use my alternative package `iaria-lite`, which allows you to adjust your bib stack.

4 Requirements

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

- IEEEtran
- biblatex
- biblatex-ieee
- extdash
- floatrow
- 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
```

```latex
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}[2025/04/15 IARIA template v0.8]
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 }
```

```latex
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 % For cite compression: activated by citestyle, which
116 % must be given at package load time, and is NOT supported
117 % later on by \ExecuteBibliographyOptions
118 \RequirePackage[
119   style=ieee,
120   citestyle=numeric-comp, % by default, activate cite compression
121   backend=biber
122 ]{biblatex}
123 % TODO: numeric-comp results in "[7-9]" but IARIA would prefer IEEE-style cite compression "[
124
125 % Diferring from IEEE, IARIA requires
126 %   in bibliography: 6+ authors as first author et al.
```

```
127 %    in \citeauthor: any case of et al. with just first author et al.
128 % as preamble options of biblatex that may be given after load-time:
129 \ExecuteBibliographyOptions{
130   defernumbers=true,
131   hyperref,
132   maxnames=5,
133   minnames=1,
134   maxcitenames=2,
135   mincitenames=1
136 }
137
138 % Due to applied option defernumbers=true:
139 % Prevent citations in the references are being numbered as '0' in ArXiv
140 % https://tex.stackexchange.com/questions/463556
141 % /all-the-citations-in-the-references-are-being-numbered-as-0-in-arxiv-while-upl
142 \makeatletter
143 \let\blx@rerun@biber\relax
144 \makeatother
145
146 % When using multiple citation keys in the same \cite command,
147 % change IEEEtran "[1], [5], [7]" to IARIA-required "[1][5][7]":
148 \renewcommand*{\multicitedelim}{][}
149 \renewcommand*{\multiciterangedelim}{]--[} % only required for numeric-comp, not for ieee-com
150
151 \renewcommand*{\bibfont}{\small}
152
153 % Zotero generates wrong language fields with wrong "en"
154 % instead of correct "english" option, thus, despite
155 % default biblatex clearlang, the "en" will incorrectly
156 % be printed out, even in english papers.
157 % Make "en" equivalent to "english" and/or its derivatives:
158 \DeclareRedundantLanguages{en}{english,american,british,
159   canadian,australian,newzealand,USenglish,UKenglish}
160
161 % Diferring from IEEE, IARIA requires, for ONLINE entries,
162 % no point but a comma between author and title:
163 % For style=ieee
164 \DeclareBibliographyDriver{online}{%
165   \usebibmacro{bibindex}%
166   \usebibmacro{begentry}%
167   \usebibmacro{author/editor+others/translator+others}
168   \setunit{\labelnamepunct}\newblock
169   \usebibmacro{title}%
170   \newunit
171   \printlist{language}%
172   \newunit\newblock
173   \usebibmacro{byauthor}%
174   \newunit\newblock
175   \usebibmacro{byeditor+others}%
176   \newunit\newblock
177   \printfield{version}%
178   \newunit
179   \printfield{note}%
180   \newunit\newblock
```

```
181  \printlist{organization}
182  \newunit\newblock
183  \usebibmacro{date}%
184  \newunit\newblock
185  \iftoggle{bbx:eprint}
186  {\usebibmacro{eprint}}
187  {}%
188  \newunit\newblock
189  \usebibmacro{url+urldate}%
190  \newunit\newblock
191  \usebibmacro{addendum+pubstate}%
192  \setunit{\bibpagerefpunct}\newblock
193  \usebibmacro{pageref}%
194  \usebibmacro{finentry}}
195
196  \makeatletter
197  % Diferring from IEEE, IARIA requires non-abbreviated references:
198  \renewcommand{\fnum@figure}{Figure~\thefigure}
199  % Diferring from IEEE, IARIA requires 14 point bold Times for the title
200  \renewcommand{\title}[1]{\renewcommand{\@title}{\bfseries\Large #1}}
201  % Diferring from IEEE, IARIA requires "Keywords" instead of "Index Terms":
202  \renewcommand\IEEEkeywordsname{Keywords}
203  \makeatother
204
205  \RequirePackage{xpatch}
206  % Diferring from IEEE, IARIA requires a hyphen after "Keywords"
207  % instead of an   emdash:
208  \xpatchcmd\IEEEkeywords{---}{-}{}{}
209
210  % Diferring from IEEE, IARIA requires also the keywords in Italic
211  % (and Bold)(and lower case!):
212  \let\oldIEEEkeywords\IEEEkeywords
213  \def\IEEEkeywords{\oldIEEEkeywords\itshape\ignorespaces}
214
215  \makeatletter
216  \renewcommand{\IEEEauthorblockN}[1]{%
217  % copied from IEEEtran.cls:
218      \relax\@IEEEauthorblockNstyle% set the default text style
219      \gdef\@IEEEauthorblockXinterlinespace{0pt}% disable strut for spacer row
220      \if@IEEEprevauthorblockincol\expandafter\@IEEEauthorblockNtopspaceline\fi
221      \global\@IEEEprevauthorblockincoltrue% we now have a block in this column
222      \gdef\@IEEEauthorblockXinterlinespace{\@IEEEauthorblockNinterlinespace}%
223      \large
224      #1%
225      \crcr}
226  \makeatother
227
228  % IARIA requires to bring the table caption
229  % in the same line as label "TABLE I"
230  \usepackage{etoolbox}
231  \makeatletter
232  \patchcmd{\@makecaption}
233    {\\}
234    {.\ }
```

```
235    {}
236    {}
237 \makeatother
238
239 % caption is compatible with babel that intervenes with tablename
240 \RequirePackage{caption}
241 % IARIA requires table caption to be
242 % above, centered, with upper case label ('TABLE'), and small caps text.
243 % (note that the caption package is only controlling the look & feel of the captions,
244 %  it does not control the placement of the captions.)
245 \captionsetup[table]{
246   style=base,
247   name=TABLE,
248   position=auto, % position option is NOT about forcing the label above/below, but ONLY about
249   justification=centering,
250   labelsep=period,
251   textfont={footnotesize, sc},
252   labelfont=footnotesize}
253 % IARIA requires figure caption to be
254 % below and centered
255 \captionsetup[figure]{
256   style=base,
257   position=auto, % position option is NOT about forcing the label above/below, but ONLY about
258   justification=centering,
259   labelsep=period,
260   font={footnotesize,rm}}
261 % For controlling the placement of the captions
262 % (table: top | figure: bottom), the package caption
263 % recommends to use package floatrow:
264 % (Without foatrom, the positioning is determined by
265 %  the textual (!) position of command \label in relation to
266 %  includegraphics/begin-tabular; a well-known latex aspect.)
267 \RequirePackage{floatrow}
268 \floatsetup[table]{capposition=top,captionskip=5pt}
269 \floatsetup[figure]{capposition=bottom,captionskip=8pt}
270
271 % IARIA subfigure captions require parentheses and footnotesize:
272 \ifnum\value{iaria@subfigtracker}=1
273   \typeout{iaria class: load subfig package (use subfloat command).}
274   \RequirePackage[caption=false,font=footnotesize]{subfig}
275 \fi
276 \ifnum\value{iaria@subcaptiontracker}=1
277   \typeout{iaria class: load subcaption package (use subfigure command).}
278   \RequirePackage{subcaption}
279   % IARIA requires subfigure caption to number them with
280   % parentheses around latin chars (like "(a)" and "(b)")
281   \captionsetup[subfigure]{labelformat=parens,font=footnotesize}
282 \fi
283
284 % Balance/level columns at the last page / in bibliography
285 % DISCLAIMER: No solution is a 100%/perfect one!
286 % Mainstream option: pbalance (see https://ctan.org/pkg/pbalance)
287 % BUT: incompatible with arxiv automated process (!)
288 \ifnum\value{iaria@pbalancetracker}=1
```

```
289    \typeout{iaria class: load pbalance package.}
290    \RequirePackage{pbalance}
291 \fi
292 % Flushend => works with arxiv, but major incampatibility with lineno
293 % (and, thus, also with mindflow et al.)
294 \ifnum\value{iaria@flushendtracker}=1
295    \typeout{iaria class: load flushend package.}
296    \RequirePackage{flushend}
297 \fi
298
299 % ==========================================================
300 % Packages with recommendation to load them last:
301
302 % Allows to hyphenate a word that contains a dash:
303 % https://stackoverflow.com/questions/2193307
304 % /how-do-i-get-latex-to-hyphenate-a-word-that-contains-a-dash
305 % Use \-/ for a breakable dash that does not prevent the
306 % remainer of the word to be hyphenated.
307 \RequirePackage[shortcuts]{extdash}
308 % ==========================================================
309
310 % Finally, we'll use \endinput to indicate that LaTeX can stop reading
311 % this file. LaTeX will ignore anything after this line.
312 \endinput
```