

# cs-techrep

## Technical Reports in Computer Science and Software Engineering

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Version 0.7

### Abstract

The `cs-techrep` class provides a convenient environment for writing technical reports in computer science and software engineering. The style is adopted from IEEE. The `cs-techrep` class requires the `latex/pdflatex` in combination with `bibtex` using a `biber` backend.

## 1 Installation

The `zip` or `tar.gz` file comes with a `cs-techrep.ins` and a `cs-techrep.dtx` file included which contains the  $\LaTeX$  stuff.

To extract the class files call:

```
$ latex cs-techrep.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 `cs-techrep` 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 `cs-techrep` into your  $\TeX$  installation, create a directory `tex/latex/cs-techrep` 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 `cs-techrep` 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 cs-techrep.ins` to install the package to its right place.

## 2 Templates

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

## 3 Documentclass

`documentclass cs-techrep` This package provides the documentclass `cs-techrep`. The documentclass supports the following options:

- `conference` Passed to `IEEEtran`
- `a4paper` Passed to `IEEEtran`
- `subfig` Loads `subfig` package with custom style settings
- `subcaption` Loads `subcaption` package with custom 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 incompatibility 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 any initial publication and a later 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. The document class provides options to load them for you with some customized style settings.

## 4 Requirements

We instrument several other L<sup>A</sup>T<sub>E</sub>X packages for different purposes, which must be available under your installation.

- IEEEtran
- acronym
- afterpage
- babel
- biblatex
- biblatex-ieee
- booktabs
- ccicons
- cleveref
- csquotes
- diagbox
- doclicense
- etoolbox
- extdash
- flushend
- fontenc
- graphicx
- hypcap
- hyperref
- hyperref
- inputenc
- lipsum
- listings
- lmodern
- lscape
- microtype
- newtxtt

- orcidlink
- paralist
- pbalance
- pdfscape
- siunitx
- stfloats
- subcaption
- subfig
- tcolorbox
- times
- todonotes
- upquote
- url
- xcolor
- xpatch
- xspace

## 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
15 %# Copyright (c) 2023-2025 Christoph P. Neumann,
16 %# Copyright (c) 2018-2021 Oliver Kopp
17 %# Reference: https://latextemplates.github.io/
18
19 % !TeX spellcheck = en-US
20 % LTeX: language=en-US
21 % !TeX encoding = utf8

```

```

22 % !TeX program = pdflatex
23 % !BIB program = biblatex / biber
24
25 \NeedsTeXFormat{LaTeX2e}
26
27 \ProvidesClass{cs-techrep}[2025/03/30 TechReps in CS and SWE v0.7]
28
29 % Define marker counter for options (counter are global in latex):
30
31 \newcounter{cstechrep@subfigtracker}
32 \newcounter{cstechrep@subcaptiontracker}
33 \newcounter{cstechrep@pbalancetracker}
34 \newcounter{cstechrep@flushendtracker}
35
36 % Declare options:
37
38 \DeclareOption{subfig}{
39   \setcounter{cstechrep@subfigtracker}{1}
40   \typeout{cs-techrep class: subfig option is set (use subfloat command).}
41 }
42 \DeclareOption{subcaption}{
43   \setcounter{cstechrep@subcaptiontracker}{1}
44   \typeout{cs-techrep class: subcaption option is set (use subfigure command).}
45 }
46
47 % IEEE option onecolumn will be ignored
48 \DeclareOption{onecolumn}{\OptionNotUsed}
49
50 \DeclareOption{pbalance}{
51   \setcounter{cstechrep@pbalancetracker}{1}
52   \typeout{cs-techrep class: pbalance option is set.}
53 }
54 \DeclareOption{flushend}{
55   \setcounter{cstechrep@flushendtracker}{1}
56   \typeout{cs-techrep class: flushend option is set.}
57 }
58
59 % We'll pass any document class options along to the underlying class
60 % (recommended IEEE options: conference,a4paper)
61 \DeclareOption*{%
62   \PassOptionsToClass{\CurrentOption}{IEEEtran}
63 }
64
65 % Now we'll execute any options passed in
66 \ProcessOptions\relax
67
68 % Instead of defining each and every little detail required to create a new
69 % document class, you can base your class on an existing document class.
70 \LoadClass{IEEEtran}
71
72 % This template has been tested with IEEEtran of 2015.
73
74 % =====
75 % USER PROVIDED VARIABLES

```

```

76
77 \makeatletter
78 \newcommand*\DefcstechrepVar[1]{%
79 \@namedef{cstechrep#1}##1{\global\@namedef{cstechrep#1}{##1}}}
80 \makeatother
81
82 \DefcstechrepVar{AuthorListTex}
83 \DefcstechrepVar{AuthorListBib} % Use *and* as author separator!
84 \DefcstechrepVar{TitleTex}
85 \DefcstechrepVar{TitleBib}
86 \DefcstechrepVar{Department} % e.g., Department of Computer Science
87 \DefcstechrepVar{Institution} % e.g., OTH Amberg-Weiden
88 \DefcstechrepVar{Address} % e.g., Amberg, Germany
89 \DefcstechrepVar{Type} % e.g., Technical Report
90 \DefcstechrepVar{Year} % e.g., 2024
91 \DefcstechrepVar{Title}
92 \DefcstechrepVar{Month} % e.g., 10 (for October)
93 \DefcstechrepVar{Number} % e.g., CL-2024-42
94 \DefcstechrepVar{Lang} % e.g., english = en-US (or: ngerman = DE)
95 % =====
96
97 % backticks (‘) are rendered as such in verbatim environments.
98 % See following links for details:
99 % - https://tex.stackexchange.com/a/341057/9075
100 % - https://tex.stackexchange.com/a/47451/9075
101 % - https://tex.stackexchange.com/a/166791/9075
102 \RequirePackage{upquote}
103
104 % Set English as language and allow to write hyphenated="words
105 %
106 % Even though ‘american‘, ‘english‘ and ‘usenglish‘ are synonyms
107 % for babel package (according to
108 % https://tex.stackexchange.com/questions/12775/babel-english-american-usenglish),
109 % the llncs document class is prepared to avoid the overriding of certain
110 % names (such as "Abstract." -> "Abstract" or "Fig." -> "Figure")
111 % when using ‘english‘, but not when using the other 2.
112 % english has to go last to set it as default language
113 \RequirePackage[ngerman,main=english]{babel}
114 %
115 % Hint by http://tex.stackexchange.com/a/321066/9075 -> enable "=" as dashes
116 \addto\extrasenglish{\languageshorthands{ngerman}\usesshorthands{}}
117
118 % CM variant with scalable font
119 % (to prevent "pdfTeX error (font expansion):
120 % auto expansion is only possible with scalable")
121 \RequirePackage{lmodern}
122 % Times New Roman, because IEEE is based on Times (and not CM/lmodern),
123 % however, package times is not a scalable font, thus, lmodern is required
124 % additionally and must be loaded before times.
125 \RequirePackage{times}
126
127 % Links behave as they should. Enables "\url{...}" for URL typesettings.
128 % Allow URL breaks also at a hyphen, even though it might be confusing:
129 % Is the "-" part of the address or just a hyphen?

```

```

130 % See https://tex.stackexchange.com/a/3034/9075.
131 \RequirePackage[hyphens]{url}
132
133 % When activated, use text font as url font, not the monospaced one.
134 % For all options see https://tex.stackexchange.com/a/261435/9075.
135 % \urlstyle{same}
136
137 % Improve wrapping of URLs - hint by http://tex.stackexchange.com/a/10419/9075
138 \makeatletter
139 \g@addto@macro{\UrlBreaks}{\UrlOrds}
140 \makeatother
141
142 % nicer // - solution by http://tex.stackexchange.com/a/98470/9075
143 % DO NOT ACTIVATE -> prevents line breaks
144 %\makeatletter
145 %\def\Url@twoslashes{\mathchar'\@ifnextchar/{\kern-.2em}{}}
146 %\g@addto@macro\UrlSpecials{\do\/{\Url@twoslashes}}
147 %\makeatother
148
149 % use nicer font for code
150 \RequirePackage[zerostyle=b,scaled=.75]{newtxtt}
151
152 % inputenc must be loaded before biblatex
153 \RequirePackage[utf8]{inputenc}
154
155 % Has to be loaded AFTER any font packages.
156 % See https://tex.stackexchange.com/a/2869/9075.
157 \RequirePackage[T1]{fontenc}
158
159
160 % Character protrusion and font expansion.
161 % See http://www.ctan.org/tex-archive/macros/latex/contrib/microtype/
162 \RequirePackage[
163   babel=true, % Enable language-specific kerning
164   expansion=alltext,
165   protrusion=alltext-nott, % Ensure no changes at the edge of the listing.
166   nopatch=eqnum, % fix unable to apply patch eqnum
167   final % Always enable microtype, even if in draft mode.
168   % This helps finding bad boxes quickly. In the standard
169   % configuration, this template is always in the final mode, so
170   % this option only makes a difference if "pros" use the draft mode.
171 ]{microtype}
172
173 % \texttt{test -- test} keeps the "--" as "--"
174 % (and does not convert it to an en dash)
175 \DisableLigatures{encoding = T1, family = tt* }
176
177 \RequirePackage{graphicx}
178
179 % Creative Commons
180 \RequirePackage{ccicons}
181
182 % Diagonal lines in a table
183 % http://tex.stackexchange.com/questions/17745/diagonal-lines-in-table-cell

```

```

184 % Slashbox is not available in texlive (due to licensing)
185 % and also gives bad results. Thus, we use diagbox
186 \RequirePackage{diagbox}
187
188 \RequirePackage[cmym, table]{xcolor}
189
190 \RequirePackage{relsize} % allows for \textsmaller{..}
191
192 \RequirePackage[nolist,smaller]{acronym}
193
194 % Code Listings
195 \RequirePackage{listings}
196
197 \definecolor{eclipseStrings}{RGB}{42,0.0,255}
198 \definecolor{eclipseKeywords}{RGB}{127,0,85}
199 \colorlet{numb}{magenta!60!black}
200
201 % JSON definition
202 % Source: https://tex.stackexchange.com/a/433961/9075
203
204 \lstdefinlanguage{json}{
205   basicstyle=\normalfont\ttfamily,
206   commentstyle=\color{eclipseStrings}, % style of comment
207   stringstyle=\color{eclipseKeywords}, % style of strings
208   numbers=left,
209   numberstyle=\scriptsize,
210   stepnumber=1,
211   numbersep=8pt,
212   showstringspaces=false,
213   breaklines=true,
214   frame=lines,
215   % backgroundcolor=\color{gray}, %only if you like
216   string=[s]{""},
217   comment=[l]{:\ "},
218   morecomment=[l]{:"},
219   literate=
220     *{0}{{{\color{numb}0}}}{1}
221     {1}{{{\color{numb}1}}}{1}
222     {2}{{{\color{numb}2}}}{1}
223     {3}{{{\color{numb}3}}}{1}
224     {4}{{{\color{numb}4}}}{1}
225     {5}{{{\color{numb}5}}}{1}
226     {6}{{{\color{numb}6}}}{1}
227     {7}{{{\color{numb}7}}}{1}
228     {8}{{{\color{numb}8}}}{1}
229     {9}{{{\color{numb}9}}}{1}
230 }
231
232 \lstset{
233   % everything between (* *) is a latex command
234   escapeinside={(*}{*)},
235   %
236   language=json,
237   %

```



```

238 showstringspaces=false,
239 %
240 extendedchars=true,
241 %
242 basicstyle=\footnotesize\ttfamily,
243 %
244 commentstyle=\slshape,
245 %
246 % default: \rmfamily
247 stringstyle=\ttfamily,
248 %
249 breaklines=true,
250 %
251 breakatwhitespace=true,
252 %
253 % alternative: fixed
254 columns=flexible,
255 %
256 numbers=left,
257 %
258 numberstyle=\tiny,
259 %
260 basewidth=.5em,
261 %
262 xleftmargin=.5cm,
263 %
264 % aboveskip=0mm,
265 %
266 % belowskip=0mm,
267 %
268 captionpos=b
269 }
270
271 % Enable Umlauts when using \lstinputputlisting.
272 % See https://stackoverflow.com/a/29260603/873282 für details.
273 % listingsutf8 did not work in June 2020.
274 \lstset{literate=
275 {á}{\`a}}1 {é}{\`e}}1 {í}{\`i}}1 {ó}{\`o}}1 {ú}{\`u}}1
276 {Á}{\`A}}1 {É}{\`E}}1 {Í}{\`I}}1 {Ó}{\`O}}1 {Ú}{\`U}}1
277 {à}{\`a}}1 {è}{\`e}}1 {ì}{\`i}}1 {ò}{\`o}}1 {ù}{\`u}}1
278 {À}{\`A}}1 {È}{\`E}}1 {Ì}{\`I}}1 {Ò}{\`O}}1 {Û}{\`U}}1
279 {ä}{\`a}}1 {ë}{\`e}}1 {ï}{\`i}}1 {ö}{\`o}}1 {ü}{\`u}}1
280 {Ä}{\`A}}1 {Ë}{\`E}}1 {Ï}{\`I}}1 {Ö}{\`O}}1 {Û}{\`U}}1
281 {â}{\`a}}1 {ê}{\`e}}1 {î}{\`i}}1 {ô}{\`o}}1 {û}{\`u}}1
282 {Â}{\`A}}1 {Ê}{\`E}}1 {Î}{\`I}}1 {Ô}{\`O}}1 {Û}{\`U}}1
283 {Ã}{\`A}}1 {ã}{\`a}}1 {Õ}{\`O}}1 {ö}{\`o}}1
284 {œ}{\`oe}}1 {Œ}{\`OE}}1 {æ}{\`ae}}1 {Æ}{\`AE}}1 {ß}{\`ss}}1
285 {ħ}{\`H}}1 {Ħ}{\`H}}1 {ħ}{\`H}}1 {Ħ}{\`H}}1 {Ħ}{\`H}}1
286 {ç}{\`c}}1 {Ç}{\`C}}1 {ø}{\`o}}1 {ä}{\`r a}}1 {Ä}{\`r A}}1
287 }
288
289 % Allows for column type X
290 % In tabularx environment, e.g., \begin{tabularx}{\textwidth}{lX}
291 \RequirePackage{tabularx}

```

```

292 % Definition of booktabs commands (\toprule, \midrule, \bottomrule)
293 % without booktabs package:
294 % (However, the smallskip still breaks vertical lines!)
295 \newcommand{\toprule}{\hline\noalign{\smallskip}}
296 \newcommand{\midrule}{\noalign{\smallskip}\hline\noalign{\smallskip}}
297 \newcommand{\bottomrule}{\noalign{\smallskip}\hline}
298
299 % Extended enumerate, such as \begin{compactenum}
300 \RequirePackage[alwaysadjust]{paralist}
301
302 % Read: Is there a disadvantage to using natbib=true with biblatex?
303 % https://tex.stackexchange.com/questions/149313
304 % /is-there-a-disadvantage-to-using-natbib-true-with-biblatex
305 % Substitutions:
306 % Natbib \textcite = biblatex \textcite
307 % Natbib \citep = biblatex \parencite
308
309 \RequirePackage[
310   defernumbers=true, % required due to self-cite
311   %style=ieee, % english only
312   sorting=none, % nty, nyt, nyvt, anyt, anyvt, ynt, ydnt, none, debug
313   sortcites=false,
314   citestyle=numeric-comp, % BEWARE: ieee-comp would be preferred, but Overleaf does current
315   bibstyle=numeric,
316   backend=biber,
317   bibencoding=utf8, % = auto, utf8, ascii
318   hyperref=true, % activate hyperref support
319   backref=false, % activate backrefs
320   isbn=true,
321   url=true,
322   doi=true,
323   urldate=terse, % = iso, year, short, long, terse
324   maxnames=5, % max number of names in text ??
325   minnames=1, % min number of names in text ??
326   maxbibnames=99, % max number of names in bibliography
327   minbibnames=1, % number of names in bibliography (bevor et al)
328   maxcitenames=99, % max number of names in text ??
329   mincitenames=1, % max number of names in text ??
330   giveninits=false, % abbreviate first names
331   uniquename=init, % otherwise option conflict with firstinits=true
332   autolang=other
333 ]{biblatex}
334
335 % Due to applied option defernumbers=true:
336 % Prevent citations in the references are being numbered as '0' in ArXiv
337 % https://tex.stackexchange.com/questions/463556
338 % /all-the-citations-in-the-references-are-being-numbered-as-0-in-arxiv-while-upl
339 \makeatletter
340 \let\blx@rerun@biber\relax
341 \makeatother
342
343 % selfref.bib needs to be generated, containing a bibentry with key selfref
344 \addbibresource{selfref.bib}
345 \DeclareBibliographyCategory{selfref}

```

```

346 \addtocategory{selfref}{selfref}
347 % How to use: \printbibliography[notcategory=selfref]
348
349 % Same fontsize as without natbib
350 \renewcommand{\bibfont}{\normalfont\small}
351
352 % Zotero generates wrong language fields with wrong "en"
353 % instead of correct "english" option, thus, despite
354 % default biblatex clearlang, the "en" will incorrectly
355 % be printed out, even in english papers.
356 % Make "en" equivalent to "english" and/or its derivatives:
357 \DeclareRedundantLanguages{en}{english,american,british,
358   canadian,australian,newzealand,USenglish,UKenglish}
359
360 % Enable hyperlinked author names in the case of \textcite
361 % Source: https://tex.stackexchange.com/a/76075/9075
362 \RequirePackage{etoolbox}
363 \makeatletter
364 \patchcmd{\NAT@test}{\else \NAT@nm}{\else \NAT@hyper@{\NAT@nm}}{-}{-}
365 \makeatother
366
367 \makeatletter
368 \DeclareCiteCommand{\citemonth}
369   {\usebibmacro{prenote}}
370   {%
371     \let\oldabx@bibmonth\abx@bibmonth%
372     \setkeys{blx@opt@pre}{dateabbrev=false}% nowork
373     \mkbibmonth{\thefield{month}}%
374     \let\abx@bibmonth\oldabx@bibmonth% restore
375   }
376   {\multicitedelim}
377   {\usebibmacro{postnote}}
378 \makeatother
379
380 %% Enable nice TODO comments
381 \RequirePackage{colorinlistoftodos,prependcaption,textsize=tiny}{todonotes}
382 \newcommand{\TODO}[1]{\todo[%
383   linecolor=red,backgroundcolor=red!25,bordercolor=red]{#1}}
384
385 % bring the table caption in the same line as label "Table I"
386 \usepackage{etoolbox}
387 \makeatletter
388 \patchcmd{\@makecaption}
389   {\}
390   {.\ }
391   {}
392   {}
393 \makeatother
394
395 % For controlling the placement of the captions
396 % (table: top | figure: bottom), the package caption
397 % recommends to use package floatrow:
398 % (Without floatrom, the positioning is determined by
399 % the textual (!) position of command \label in relation to

```

```

400 % includegraphics/begin-tabular; a well-known latex aspect.)
401 \RequirePackage{floatrow}
402 \floatsetup[table]{capposition=top,captionskip=5pt}
403 \floatsetup[figure]{capposition=bottom,captionskip=8pt}
404
405 % Put footnotes below floats
406 % Source: https://tex.stackexchange.com/a/32993/9075
407 % and allow floats in a twocolumn document with [t] or [b]
408 \RequirePackage{stfloats}
409 \fnbelowfloat
410
411 \RequirePackage[group-minimum-digits=4,per-mode=fraction]{siunitx}
412 \addto\extrasgerman{\sisetup{locale = DE}}
413
414 % Enable that parameters of \cref{}, \ref{}, \cite{}, ...
415 % are linked so that a reader can click on the number
416 % and jump to the target in the document
417 \RequirePackage{hyperref}
418
419 % Enable hyperref without colors and without bookmarks
420 \hypersetup{
421   hidelinks,
422   colorlinks=true,
423   allcolors=black,
424   pdfstartview=Fit,
425   breaklinks=true
426 }
427
428 % Enable correct jumping to figures when referencing
429 \RequirePackage[all]{hypcap}
430
431 \RequirePackage{orcidlink}
432
433 % For easy quotations: \enquote{text}
434 % This package is very smart when nesting is applied,
435 % otherwise textcmds (see below) provides a shorter command
436 \RequirePackage[autostyle=true]{csquotes}
437
438 % Enable using "'quote'"
439 % See: https://tex.stackexchange.com/a/150954/9075
440 \defineshorthand{"'"}{\openautoquote}
441 \defineshorthand{"'"}{\closeautoquote}
442
443 % amsmath must be loaded before cleveref
444 \usepackage{amsmath,amssymb,amsfonts}
445
446 % Extensions for references inside the document (\cref{fig:sample}, ...)
447 % Enable usage \cref{...} and \Cref{...} instead of \ref:
448 % Type of reference included in the link.
449 % That means, "Figure 5" is a full link instead of just "5".
450 % !! Underlying rules for "capitalize" and "noabbrev": APA style
451 % http://www.sagepub.com/upm-data/27160\_APA\_Style.pdf
452 % Use a capital letter "S" when saying "In Section 2, we..."
453 % Don't use capital letters when saying "There are four sections, ..."

```

```

454 % Capitalize when figure is followed by a number, e.g., "In Figure 3, we...."
455 % Don't use when no number follows, e.g., "The two figures ..."
456 % (Please notice: CMOS would prefer lower letters, in contrast to APA.)
457 \RequirePackage[capitalise,nameinlink,noabbrev]{cleveref}
458
459 \crefname{listing}{Listing}{Listings}
460 \Crefname{listing}{Listing}{Listings}
461 \crefname{lstlisting}{Listing}{Listings}
462 \Crefname{lstlisting}{Listing}{Listings}
463
464 \RequirePackage{lipsum}
465
466 \RequirePackage{tcolorbox}
467 \tcuselibrary{listings}
468
469 %introduce \powerset
470 % See: http://matheplanet.com/matheplanet/nuke/
471 % html/viewtopic.php?topic=136492&post\_id=997377
472 \DeclareFontFamily{U}{MnSymbolC}{}
473 \DeclareSymbolFont{MnSyC}{U}{MnSymbolC}{m}{n}
474 \DeclareFontShape{U}{MnSymbolC}{m}{n}{
475 <-6> MnSymbolC5
476 <6-7> MnSymbolC6
477 <7-8> MnSymbolC7
478 <8-9> MnSymbolC8
479 <9-10> MnSymbolC9
480 <10-12> MnSymbolC10
481 <12-> MnSymbolC12%
482 }{}
483 \DeclareMathSymbol{\powerset}{\mathord}{MnSyC}{180}
484
485 \RequirePackage{xspace}
486 %\newcommand{\eg}{e.\,g.\,xspace}
487 %\newcommand{\ie}{i.\,e.\,xspace}
488 \newcommand{\eg}{e.\,g.\,\ }
489 \newcommand{\ie}{i.\,e.\,\ }
490
491 % Enable hyphenation at other places as the dash.
492 % Example: application\hydash specific
493 \makeatletter
494 \newcommand{\hydash}{\penalty\M-\hskip\z@skip}
495 % Definition of "="
496 % See: http://mirror.ctan.org/macros/latex
497 % /contrib/babel-contrib/german/ngermanb.dtx
498 \makeatother
499
500 % Enable copy and paste of text from the PDF
501 % Only required for pdflatex. It "just works" in the case of lualatex.
502 \input glyphtounicode
503 \pdfgentounicode=1
504
505 \RequirePackage{lscap}
506 \RequirePackage{pdfscape}
507 \RequirePackage{afterpage}

```

```

508
509 % requires, e.g., \PassOptionsToPackage{
510 % type=CC,modifier=by,version=4.0}{doclicense} before \documentclass
511 \RequirePackage[hyperxmp=false,lang=English]{doclicense}
512
513 % Improve wrapping of URLs
514 % See: http://tex.stackexchange.com/a/10419/9075
515 \makeatletter
516 \def\ps@IEEEtitlepagestyle{
517   \def\@oddfoot{\mycopyrightnotice}
518   \def\@evenfoot{}
519 }
520 \def\mycopyrightnotice{
521   {\footnotesize
522     \begin{minipage}{0.8\textwidth}
523     \centering
524     % License based on doclicense package:
525     \href{\doclicenseURL}{\doclicenseIcon}
526     This work is licensed under a \doclicenseLongNameRef{
527       (\doclicenseNameRef{ }) license.}
528     % Citation advice:
529     \Please cite as: \fullcite{selfref}.
530   \end{minipage}
531   }
532 }
533 \makeatother
534
535 \makeatletter
536 % allows for forcing command expansion inside a filecontents* environment
537 % (cf. https://tex.stackexchange.com/questions/534035
538 % /macros-commands-inside-a-filecontents-environment-does-not-expand)
539 \def\filecontentsForceExpansion#1#2#3{
540   \global\let\ltxspecials\dospecials
541   \gdef\dospecials{\ltxspecials
542     \catcode'#1=0
543     \catcode'#2=1
544     \catcode'#3=2
545     \global\let\dospecials\ltxspecials
546   }
547 }
548 \makeatother
549
550 \title{\cstechrepTitleTex}
551
552 \author{
553 \IEEEauthorblockN{\cstechrepAuthorListTex}
554 \IEEEauthorblockA{%
555 \cstechrepDepartment\\
556 \cstechrepInstitution\\
557 \cstechrepAddress
558 }}
559
560 \IEEEspecialpapernotice{\cstechrepType: \cstechrepNumber,
561 \citemonth{selfref} \cstechrepYear}

```

```

562
563 % subfigure captions with parentheses and footnotesize:
564 \ifnum\value{cstechrep@subfigtracker}=1
565   \typeout{cs-techrep class: load subfig package (use subfloat command).}
566   \RequirePackage[caption=false,font=footnotesize]{subfig}
567 \fi
568 \ifnum\value{cstechrep@subcaptiontracker}=1
569   \typeout{cs-techrep class: load subcaption package (use subfigure command).}
570   \RequirePackage{subcaption}
571   \captionsetup[subfigure]{labelformat=parens,font=footnotesize}
572 \fi
573
574 % Balance/level columns at the last page / in bibliography
575 % DISCLAIMER: No solution is a 100%/perfect one!
576 % Mainstream option: pbalance (see https://ctan.org/pkg/pbalance)
577 % BUT: incompatible with arxiv automated process (!)
578 \ifnum\value{cstechrep@pbalancetracker}=1
579   \typeout{cs-techrep class: load pbalance package.}
580   \RequirePackage{pbalance}
581 \fi
582 % Flushend => works with arxiv, but major incampatibility with lineno
583 % (and, thus, also with mindflow et al.)
584 \ifnum\value{cstechrep@flushendtracker}=1
585   \typeout{cs-techrep class: load flushend package.}
586   \RequirePackage{flushend}
587 \fi
588
589 % =====
590 % Packages that need to be loaded last:
591
592 % Allows to hyphenate a word that contains a dash:
593 % https://stackoverflow.com/questions/2193307
594 % /how-do-i-get-latex-to-hyphenate-a-word-that-contains-a-dash
595 % Use \-/ for a breakable dash that does not prevent the remainder
596 % of the word to be hyphenated.
597 \RequirePackage[shortcuts]{extdash}
598 % =====
599
600 % Finally, we'll use \endinput to indicate that LaTeX can stop reading
601 % this file. LaTeX will ignore anything after this line.
602 \endinput

```