

How to Write an Excellent Excel@FIT Paper

Adam Herout*



Abstract

What is the problem? What is the topic?, the aim of this paper? Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce ullamcorper suscipit euismod. Mauris sed lectus non massa molestie congue. In hac habitasse platea dictumst. How is the problem solved, the aim achieved (methodology)? Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce ullamcorper suscipit euismod. Mauris sed lectus non massa molestie congue. In hac habitasse platea dictumst. Curabitur massa neque, commodo posuere fringilla ut, cursus at dui. Nulla quis purus a justo pellentesque. What are the specific results? How well is the problem solved? Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce ullamcorper suscipit euismod. Mauris sed lectus non massa molestie congue. In hac habitasse platea dictumst. So what? How useful is this to Science and to the reader? Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce ullamcorper suscipit euismod.

Keywords: Keyword1 — Keyword2 — Keyword3

Supplementary Material: [Demonstration Video](#) — [Downloadable Code](#)

*herout@fit.vutbr.cz, Faculty of Information Technology, Brno University of Technology

1. Introduction

[Motivation] What is the raison d'être of your project? Why should anyone care? No general meaningless claims. Make bulletproof arguments for the importance of your work. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer sit amet neque vel mi sodales interdum nec a mi. Aliquam eget turpis venenatis, tincidunt purus eget, euismod neque. Nulla et porta tortor, id lobortis turpis. Sed scelerisque sem eget ante interdum, vel volutpat arcu volutpat.

[Problem definition] What exactly are you solving? What is the core and what is a bonus? What parameters should a proper solution of the problem have? Define the problem precisely and state how its solution should be evaluated. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Pellentesque non arcu quis nunc efficitur vestibulum. Integer gravida

neque suscipit diam porta aliquet. Maecenas porttitor libero ut turpis porttitor, auctor porta ligula rhoncus. Etiam a turpis blandit, eleifend dolor eget, egestas ligula. Nullam sollicitudin pulvinar mi sit amet interdum. Etiam in ultrices ante. Suspendisse potenti. Duis vel nisi eget tellus volutpat tempor. Etiam laoreet magna elit, et sollicitudin lectus tempor sit. Maecenas porttitor libero ut turpis porttitor, auctor porta ligula rhoncus. Etiam a turpis blandit, eleifend dolor eget, egestas ligula.

[Existing solutions] Discuss existing solutions, be fair in identifying their strengths and weaknesses. Cite important works from the field of your topic. Try to define well what is the *state of the art*. You can include a Section 2 titled "Background" or "Previous Works" and have the details there and make this paragraph short. Or, you can enlarge this paragraph to a

35 whole page. In many scientific papers, *this* is the most
 36 valuable part if it is written properly. Lorem ipsum
 37 dolor sit amet, consectetur adipiscing elit. Praesent
 38 congue enim eu eros dictum sagittis. Aliquam ligula
 39 arcu, gravida at augue et, aliquet condimentum nulla.
 40 Morbi a lectus arcu. Nam ac commodo nisi, a accum-
 41 san nunc. Nam sed ante vel nulla elementum lobortis.
 42 Aliquam sed laoreet risus. Etiam ipsum odio, gravida
 43 eget sapien dictum, eleifend aliquet ex. Duis dapibus
 44 vitae enim vitae bibendum. Phasellus eget pulvinar
 45 massa. Mauris ornare urna. Maecenas porttitor libero
 46 ut turpis porttitor, auctor porta ligula rhoncus. Etiam a
 47 turpis blandit, eleifend dolor eget, egestas ligula. Nul-
 48 lam sollicitudin pulvinar mi sit amet interdum. Etiam
 49 in ultrices ante. Suspendisse potenti. Duis vel nisi eget
 50 tellus volutpat tempor. Suspendisse potenti. Duis vel
 51 nisi eget tellus volutpat tempor.

52 **[Our solution]** Make a quick outline of your ap-
 53 proach – pitch your solution. The solution will be
 54 described later in detail, but give the reader a very
 55 quick overview now. Lorem ipsum dolor sit amet, con-
 56 sectetur adipiscing elit. Morbi laoreet risus a egestas
 57 imperdiet. Ut egestas nibh non fermentum vestibulum.
 58 Nullam quis eleifend ex, sed maximus nisl. Mauris
 59 maximus non dolor id tristique. Nunc pulvinar congue
 60 gravida. Nullam lobortis viverra leo sed commodo.
 61 Nulla in elit congue, ullamcorper metus non, eleifend
 62 risus. Vivamus porttitor, ex nec porttitor pretium,
 63 libero turpis ultrices dui, eu efficitur ante ipsum vel
 64 justo. Vivamus nec nulla nisi. Aenean quis mauris
 65 vitae metus gravida congue.

66 **[Contributions]** Sell your solution. Pinpoint your
 67 achievements. Be fair and objective. Lorem ipsum
 68 dolor sit amet, consectetur adipiscing elit. Integer sit
 69 amet neque vel mi sodales interdum nec a mi. Aliquam
 70 eget turpis venenatis, tincidunt purus eget, euismod
 71 neque. Nulla et porta tortor, id lobortis turpis. Sed
 72 scelerisque sem eget ante interdum, vel volutpat arcu
 73 volutpat. Aliquam cursus, dolor a luctus.

74 2. How To Use This Template

75 Here will go several sections describing **your work**.
 76 From theoretical background (Section 2), through your
 77 own methodology (Section 3), experiments and imple-
 78 mentation (Section 4 and possibly 5), to conclusions
 79 (Section 6). Instead of such technical content, here
 80 in this template we give a few hints how to write the
 81 paper.

82 Here is a list of actions to do first when you want
 83 to write an Excel@FIT paper:

84 1. Download all the template files (Sec. 2.1) into a
 85 directory. Maybe setup a GIT sync for backup,



Figure 1. Good writing is bad writing that was rewritten several times. Don't worry, start somewhere.

sharing, and for use from multiple computers. 86
 Not anymore, it's much better to use Overleaf 87
 and base your paper on the template provided 88
 there. 89

2. Rename *2021-ExcelFIT-ShortName.tex* – replace 90
 ShortName with something that identifies your 91
 work and is short enough. For example: *Vehicle-* 92
Boxes, *VanishingPoints*, *FastShadows*, *NewPro-* 93
beTesting, *CheapDynamicDNS*, ... This ensures 94
 that the filename already gives a hint what is in 95
 there (*mypaper.pdf* is really stupid). Not any- 96
 more. 97
3. Decide the language of your paper. English is 98
 recommended, as it is the language of science 99
 and technology. However, if you need to write 100
 in Czech or Slovak, you may. Use the correct 101
 option to the `\documentclass` command – 102
 the very first line of the template. The option 103
 may be either `[czech]` or `[slovak]`. 104
4. Insert meta information: **your name, e-mail,** 105
paper title. Make sure the year in the top right 106
 corner of the document is correct. Do not hes- 107
 itate to use `ěščřžýáíé` in your name – the \LaTeX 108
 template is configured to eat UTF8 Unicode. 109
5. Insert teaser images (“image abstract”). Use as 110
 many `\TeaserImage` commands as suitable 111
 – three or four will usually be fine for a one- 112
 line teaser. If you absolutely don't have any 113
 image showing your work (what kind of work 114
 could that be, anyway?!), remove the `\Teaser` 115
 command. 116
6. Insert references to supplementary material. That 117
 will typically be clickable links to a youtube / 118
 vimeo video and to downloadable code, hyper- 119
 link to an online demo, or a github repo. If you 120

121 have anything else relevant, put it in. If there
 122 is no supplementary material (really?!), remove
 123 or comment out the `\Supplementary` com-
 124 mand.
 125 7. Keep calm and start writing (Figure 1). Some
 126 suggestions how to do this are in Section 3.
 127 8. When your paper is accepted to Excel@FIT,
 128 uncomment `\ExcelFinalCopy` at the begin-
 129 ning of the \LaTeX file. The line numbers will
 130 disappear from the sides of the text and your
 131 paper is ready for final publication.

132 Jean-Luc Lebrun [1] offers excellent recommen-
 133 dations for the canonical sections of scientific/techni-
 134 cal papers. That is why Abstract, Introduction, and
 135 Conclusions in this template are already structured
 136 (remove the [Bold labels] in the Introduction and Con-
 137 clusions, they are there just for your information and
 138 should not remain in the paper). This structure is no
 139 more than a recommendation, but divert from it only
 140 in cases when you exactly know what you are doing.
 141 The “phony” texts (typeset in gray color) roughly in-
 142 dicate the lengths of individual parts of these sections.
 143 Replace them with reasonable amounts of text.

144 2.1 What Files are Here and Why

145 The template package for Excel@FIT papers contains
 146 these files:

147 **excel-paper.tex** This is the template for the main \LaTeX
 148 file – this is your paper.

149 **bibliography.bib** You can delete the contents of this
 150 file completely and start adding BibTeX refer-
 151 ences.

152 **ExcelAtFIT.cls** \LaTeX class file based on the *Stylish*
 153 *Article*¹ document class. Do not modify this file.

154 **ExcelAtFIT-logo.pdf** This is the logo on the title page.

155 **VUT-FIT-logo.pdf** Another logo on the title page.

156 **images/placeholder.pdf** Placeholder image; include
 157 it, scale it as needed, then replace it with real
 158 content.



159 **images/keep-calm.png** You don’t need this file; it
 160 is only used in this template to show how to
 161 include a *.png* file (Figure 1).
 162

163 3. How To Write the Paper — A Few Hints

164 A reasonable way to start writing is sketching the **ab-**
 165 **stract** [2]. Writing the abstract helps focus on what

¹<http://www.latextemplates.com/template/stylish-article>

is important in the paper, what is the contribution, the
 meaning for the community. This exercise might take
 some 20 minutes and it pays back by clearing the key
 points of the text. In 99 % of cases, it is very rea-
 sonable to stick to the abstract structure [1] which is
 provided in this template.

Once you have the abstract, it should be very clear
 what is the message of the paper, what is the newly
 introduced knowledge, what are the proofs of its contri-
 bution, etc. This is the right time to start constructing
 the *skeleton* of the paper: its **comics edition** [3]. This
 thing is composed of mainly four items:

1. **Sections and subsections.**
2. **Figures and tables.** At this phase, knowing
 that “once there will be a figure about this and
 that” is just fine. That is why we have the *place-*
holder.pdf image – see Figure 2. If this totally
 generic image can be replaced by some tempo-
 rary image which still needs more work, but
 which is closer to the target version, go ahead.
 A hand-drawing photographed by a cellphone is
 perfect at this stage.
3. **Todo’s.** In the early comics version, every sec-
 tion is filled by one or more `\todo` commands
 and nothing else. A todo in the text might look
 like: **[[you should do something]]**. Unlike
 some elaborated todo packages, this simple so-
 lution (defined in the template) does not break
 the page formatting and it is perfectly sufficient.
4. **Phony placeholder texts.** These help you esti-
 mate the proportions of individual sections and
 subsections and to better aim at the correct paper
 length. Use `\blind{3}` to get three paragraphs
 of beautiful grey phony text.

One hour is usually enough for creating a nice comics
 edition of the paper. No reason to wait, make a copy
 of the template and start butchering it.

Having the comics edition usually lubricates the
 whole writing process. Now, the paper contains 20 or
 so todo’s – why not take the easiest one of them and
 replace it with a few lines of text within 15 minutes or
 even less. Writing is no more a scary complex work.

3.1 Images and Tables

Visuals (figures, tables, good equations, section head-
 ings) make the skeleton of a properly written paper.
 A time-stressed reader should be able to get the idea
 from only browsing them. Therefore:

1. **Make them perfect.** Cheap and ugly images –
 cheap and ugly paper. Imperfect or shorter text –
 who cares?

- 216 2. **Make them self-contained.** Be not afraid to
 217 have a ten-lines-long caption under an image.
 218 The image plus its caption must make perfect
 219 sense by themselves, without reading the text.
 220 3. **Make them many.** EVERY technical idea is
 221 better explained by an image. Two images per
 222 page are a moderate start.

223 \LaTeX lets you easily insert both vector and raster
 224 graphics. It is reasonable to use three formats:

225 **.pdf** Perfect for vector graphics. All graphs **must** be
 226 in vector and therefore in .pdf. Gnuplot, py-
 227 plot, Matlab – they all produce vector charts
 228 in .pdf easily. **InkScape** is an open source and
 229 portable editor of vector files (SVG and – con-
 230 veniently – PDF) – this is the proper tool for
 231 making great drawings for papers. Learn it now,
 232 you will thank us later. Diagrams, system struc-
 233 tures, sketches – all vector graphics. It’s 2022,
 234 not 1980 anymore. . .

235 **.jpg** Suitable for photos. **Never** for plots or screen-
 236 shots.

237 **.png** Good for precise raster graphics. Screenshots,
 238 raster plots, raster outputs of programs. Not for
 239 diagrams and plots – unless it is a one-in-ten-
 240 years exception.

241 Make sure your image (raster or vector) does not con-
 242 tain any white surroundings, either on the top, bot-
 243 tom, left, or right. `pdfcrop` does this automatically
 244 for graphs and other vector drawings, rasters must be
 245 edited in an editor. **Please**, do this, it is easy and makes
 246 the formatting much better. **Please. Please.**

247 Caption of a table goes **before** the table (e.g. Ta-
 248 ble 1), just the opposite way than with figures. Don’t
 249 look for the logic behind, just take it as it is.

250 3.2 Sections and Subsections

251 It is usually wrong to have subsections in the Introduc-
 252 tion; it is always wrong to have them in Conclusions.
 253 In this kind of paper, it is very likely to be wrong to
 254 have any subsections.

255 Section headings are the skeleton of the paper –
 256 make them accurate and descriptive. One-word sec-
 257 tion titles (apart from Introduction and Conclusions)
 258 are typically wrong, because they are not descriptive.
 259 “Proposed Method for Running X by Using Y” is bet-
 260 ter than “The Method”. “Implemented Application
 261 for PQR Communication” is better than “Application”.
 262 The outline of all section titles should contain all the
 263 keywords relevant for the work. Just by seeing them,
 264 the reader should be able to tell precisely the topic
 265 of the paper. If not, the section headers are wrong
 266 (usually too short and too generic).

3.3 Keywords

Keywords are specified at the top of the document. 268

1. When making the list of keywords, ask yourself 269
 this: “What should one write to google, so that 270
 the right answer would be my paper?” 271
2. Very generic terms (“IT”, “Graphics”, “Hard- 272
 ware”) are useless. Narrow terms are fine (“Ma- 273
 trix Code Recognition”, “Appearance-Based Ve- 274
 hicle Segmentation”, . . .). 275

4. Frequently Used \LaTeX Fragments

Here goes an example of a table:

Table 1. Table of Grades

Name		
First name	Last Name	Grade
John	Doe	7.5
Richard	Miles	2

Figure 2 shows a wide figure, Figure 1 is a single-
 column figure with width specified relatively to the
 column. Some mathematics $\cos \pi = -1$ and α in the
 text².

Now, this is an equation:

$$\cos^3 \theta = \frac{1}{4} \cos \theta + \frac{3}{4} \cos 3\theta \quad (1)$$

and here is a bunch of equations aligned horizontally: 283

$$3x = 6y + 12 \quad (2)$$

$$x = 2y + 4 \quad (3)$$

In programming, longer and more descriptive iden-
 tifiers are better:

```
volume = width * height * length 286
if volume > volume_max: 287
    print "That's_too_much_material!" 288
```

but the same is **wrong** in mathematical writing and in
 papers. Single-letter identifiers must be used: 290

$$V = w \times h \times l, \quad (4)$$

$$\delta(V) = V > \tau_V. \quad (5)$$

Identifiers composed of more than one letters are mean-
 ingful only in rare cases such as V_{\max} or t_{start} . Always!
 Apparently, you don’t believe it and think you know
 better. Sorry, you don’t. Always use single letter vari-
 ables in equations. Oftentimes it makes sense to define
 one’s own reasonable notation by using accents: 296

$$\bar{x} = \frac{\sum_{x_i \in X} x_i}{|X|}. \quad (6)$$

²And some mathematics $\cos \pi = -1$ and α in a footnote.



Figure 2. Wide Picture. The whole figure can be composed of several smaller images. If you want to address individual images in the caption or from the text, use the *subcaption* package.

297 Hello, here is some text without a meaning. This
 298 text should show what a printed text will look like
 299 at this place. If you read this text, you will get no
 300 information. Really? Is there no information? Is there
 301 a difference between this text and some nonsense like
 302 “Huardest gefburn”? Kjift – not at all! A blind text like
 303 this gives you information about the selected font, how
 304 the letters are written and an impression of the look.
 305 This text should contain all letters of the alphabet and
 306 it should be written in of the original language. There
 307 is no need for special content, but the length of words
 308 should match the language.

309 5. Conclusions

310 **[Paper Summary]** What was the paper about, then?
 311 What the reader needs to remember about it? Lorem
 312 ipsum dolor sit amet, consectetur adipiscing elit. Proin
 313 vitae aliquet metus. Sed pharetra vehicula sem ut var-
 314 ius. Aliquam molestie nulla et mauris suscipit, ut
 315 commodo nunc mollis.

316 **[Highlights of Results]** Exact numbers. Remind
 317 the reader that the paper matters. Lorem ipsum do-
 318 lor sit amet, consectetur adipiscing elit. Sed tempus
 319 fermentum ipsum at venenatis. Curabitur ultricies,
 320 mauris eu ullamcorper mattis, ligula purus dapibus mi,
 321 vel dapibus odio nulla et ex. Sed viverra cursus mattis.
 322 Suspendisse ornare semper condimentum. Interdum et
 323 malesuada fames ac ante ipsum.

324 **[Paper Contributions]** What is the original con-
 325 tribution of this work? Two or three thoughts that one
 326 should definitely take home. Lorem ipsum dolor sit
 327 amet, consectetur adipiscing elit. Praesent posuere
 328 mattis ante at imperdiet. Cras id tincidunt purus. Ali-
 329 quam erat volutpat. Morbi non gravida nisi, non iaculis
 330 tortor. Quisque at fringilla neque.

331 **[Future Work]** How can other researchers / devel-

opers make use of the results of this work? Do you
 have further plans with this work? Or anybody else?
 Lorem ipsum dolor sit amet, consectetur adipiscing
 elit. Suspendisse sollicitudin posuere massa, non con-
 vallis purus ultricies sit amet. Duis at nisl tincidunt,
 maximus risus a, aliquet massa. Vestibulum libero
 odio, condimentum ut ex non, eleifend.

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References

- [1] Jean-Luc Lebrun. *Scientific Writing 2.0: a reader and writer's guide*. World Scientific Publishing, 2011. ISBN: 9814350605.
- [2] Adam Herout. Jak psát abstrakt. blogpost (czech), Dec 2013. <http://www.herout.net/blog/2013/12/jak-psat-abstrakt/>.
- [3] Adam Herout. Diplomka / comics edition. blogpost (czech), March 2013. <http://www.herout.net/blog/2013/03/diplomka-comics-edition/>.