Masaryk University
Faculty of Informatics

A *fibeamer* user guide

for the Faculty of Informatics

Bachelor's Thesis

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Declaration

Hereby I declare that this paper is my original authorial work, which I have worked out on my own. All sources, references, and literature used or excerpted during elaboration of this work are properly cited and listed in complete reference to the due source.

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Abstract

Fibeamer is a theme for the beamer LaTeX document class and is intended to be used for the preparation of thesis defense presentations across the faculties of the Masaryk University. This document describes the installation of the fibeamer theme, its configuration, and its use.

Keywords

thesis, typesetting, LaTeX

Contents

1 Introduction

To use the fibeamer beamer theme, you can use an online LaTeX editor, such as Overleaf[1], which allows you to skip the installation described in Section 1.1 completely.

Another way to avoid installation is to use any public-access computer at the Faculty of Informatics that runs Microsoft Windows. By running

Start » Programs » Document Tools » TeXLive2019 namapovani na T

you can mount the faculty TeX Live installation to drive `T:\`. Consequently, you can either use the command line to run commands from the TeX distribution by running

Start » Programs » Document Tools » TeXLive2019 CMD

or you can use the graphical TeX editor TeXWorks by running

Start » Programs » Document Tools » TeXWorks+TeXLive2019

Yet another way to avoid installation is to either connect to the Linux server at `aisa.fi.muni.cz` over SSH, or use any public-access computer at the Faculty of Informatics that runs Linux or Mac OS, and load the faculty TeX Live installation by issuing the `module add texlive` command on the command line. If you choose this approach, you can also skip the entire Section 1.1, although a certain degree of proficiency in working with a Unix operating system is required compared to the other methods.

1.1 Installation

1.1.1 Installing a TeX distribution

If you decided not to use a public TeX distribution, you will need to install one locally before proceeding further. A TeX distribution contains tools and packages that are going to help you with preparing and typesetting your LaTeX documents.

1. Overleaf fibeamer templates are located at `http://www.overleaf.com/gallery/tagged/muni`.

The two major TEX distributions that you can install are MikTEX[2], which can be used with the Microsoft Windows operating system, and TEX Live[3], which can be installed on both Unix and Windows operating systems. The advantages of MikTEX include refined graphical user interface and the ability to install new packages on the fly.

Along with MikTEX, you will also need to install a Perl interpreter, such as Strawberry Perl[4]. TEX Live installs a Perl interpreter by default.

1.1.2 Installing packages

In order to function properly, fibeamer needs the following packages packages to be installed in your TEX distribution: ifthen, ifxetex, ifluatex, lm, carlito, arev, iwona, dejavu, setspace, fontenc, fontspec, beamer, fibeamer.

If you performed a full installation of TEX Live, you should already have all the required packages installed. If you are using a partial installation of TEX Live, you can use the `tlmgr` command-line tool by executing `tlmgr install` ⟨*pkgname*⟩, where ⟨*pkgname*⟩ is the name of the package you wish to install. In some cases, TEX Live may assign a different name to a package. To find out the TEX Live name of a package, open the `http://www.ctan.org/pkg/`⟨*pkgname*⟩ webpage in a web browser. It should contain the following text:

Contained in TEX Live as ⟨*texlivename*⟩

where ⟨*texlivename*⟩ corresponds to the TEX Live name of the package. Use this name instead of ⟨*pkgname*⟩ with `tlmgr`. Alternatively, you can download the packages manually from `http://www.ctan.org/pkg/`⟨*pkgname*⟩ and extract them into the `texmf/` directory located in your user home directory. Mind that the packages themselves may depend on other packages; if you are using a partial installation of TEX Live, you will have to resolve these dependencies manually by inspecting the documentation of each package.

If you use MikTEX and you enabled the *over the air installation of packages* during the installation, MikTEX will automatically download all the required packages, when you first typeset a fibeamer document.

2. MikTEX can be acquired from `http://miktex.org/2.9/setup`.
3. TEX Live can be acquired from `http://www.tug.org/texlive`.
4. Strawberry Perl can be downloaded from `http://strawberryperl.com/`.

If you didn't enable this feature, you will need to enter the MikTeX package manager by running

Start » MikTeX » MikTeX Package Manager (Admin)

and download the packages manually through the user interface. In some cases, MikTeX may assign a different name to a package. To find out the MikTeX name of a package, open the `http://www.ctan.org/pkg/`⟨*pkgname*⟩ webpage in a web browser, where ⟨*pkgname*⟩ is the name of the package you wish to install. It should contain the following text:

Contained in MikTeX as ⟨*miktexname*⟩

where ⟨*miktexname*⟩ corresponds to the MikTeX name of the package. If you still can't find the package, try synchronizing the package database by selecting

Repository » Synchronize

from the menu bar of the MikTeX package manager. Mind that the packages themselves may depend on other packages; if you disabled the over the air installation of packages, you will have to resolve these dependencies manually by inspecting the documentation of each package.

If you wish to use a newer version of fibeamer than the one that is available in your TeX distribution, you should download a file named `fibeamer.tds.zip` containing the version of the package you wish to use and place it in a root directory that is recognized by your TeX distribution. In TeX Live[5], one of such directories is the `texmf/` folder in your user home directory. In MikTeX[6], the list of recognized root directories can be gleaned by running

Start » MikTeX » MikTeX Options (Admin) » Roots

5. For more information about the TeX Live root directories, see `http://www.tug.org/texlive/doc/texlive-en/texlive-en.html#x1-110002.3`, Chapter 2.3.
6. For more information about the TeX Live root directories, see `http://docs.miktex.org/manual/localadditions.html`.

1.2 Picking a TEX engine

There are several programs, called TEX engines, that you can use to typeset fibeamer LATEX source files into displayable PDF documents. The ones we will discuss are pdfTEX and LuaTEX.

PdfTEX is the more conservative choice and most TEX editors use pdfTEX as the default TEX engine. The main advantage LuaTEX over pdfTEX for a fibeamer user is the ability to use standard OpenType and TrueType fonts installed on your system, whereas pdfTEX is confined to the fonts installed in your TEX distribution.

If the ability to use arbitrary fonts within your documents interests you, Chapter 3 of the fontspec package manual[7] should provide you with the relevant information. If you are only going to use the fonts present in the TEX distribution or if you do not intend to change the preset fibeamer fonts at all, you can safely use pdfTEX, which is currently also considerably faster than LuaTEX.

1.3 Creating and typesetting a fibeamer document

Before using the fibeamer theme, it is useful to be familiar with the LATEX typesetting system. A good way to get started is to read one of the introductory texts in English [1–4] or in Czech [5, 6]. Taking one of the *FI:PB029*, *PřF:M5751*, or *FF:PLIN028* courses taught at the Masaryk University is also helpful.

To become familiar with fibeamer, you are encouraged to inspect the example fibeamer documents named `mu-fi-pdflatex.pdf` and `mu-fi-lualatex.pdf` as well as their LATEX source files that are named `mu-fi-pdflatex.tex` and `mu-fi-lualatex.tex`. These example documents are distributed along with the package inside the `example/` directory[8]. By modifying and by typesetting these LATEX source files using either the pdfTEX or the LuaTEX engine, you can quickly gain a

7. The fontspec package manual is available at `http://mirrors.ctan.org/macros/latex/contrib/fontspec/fontspec.pdf`.
8. The example fibeamer documents are also available online at `http://mirror.ctan.org/macros/latex/contrib/beamer-contrib/fibeamer/example/mu`. To typeset the example documents, you need to download the `resources/` directory as well, as it contains vector images used in the examples.

working knowledge of LaTeX and use these source files as the basis for your thesis.

If you are using an online editor, such as Overleaf [9], LaTeX source files will be typeset automatically, as you edit them. The TeX engine can be selected inside the ⚙project settings.

If you are using a graphical TeX editor, such as TeXworks[10], you can typeset a LaTeX source file by opening the source file from within the editor and running either the pdfLaTeX or LuaLaTeX (depending on your choice of TeX engine) command from the task bar. The command needs to be executed at least twice.

If you are using the command line, you can typeset LaTeX source files by running either `pdflatex` *`name.tex`* or `lualatex` *`name.tex`* (depending on your choice of TeX engine), where *`name.tex`* corresponds to the name of a LaTeX source file. In the case of the two aforementioned example files, the corresponding commands would be:

```
pdflatex mu-fi-pdflatex.tex
lualatex mu-fi-lualatex.tex
```

The command needs to be executed from within the directory, where the LaTeX source file is located. In Windows, the command line can be opened in a directory by holding down the Shift key and by clicking the right mouse button while hovering the cursor over a directory. Select the Open Command Window Here option in the context menu that opens shortly afterwards. The command also needs to be executed at least twice.

Beside Overleaf and TeXworks, any text editor can be used to modify LaTeX source files.

9. Overleaf fibeamer templates are located at `http://www.overleaf.com/gallery/tagged/muni`.
10. TeXworks can be downloaded from `http://www.tug.org/texworks/`.

2 Configuration

A fibeamer LaTeX source file should begin as follows:

```
\documentclass{beamer}
\usetheme[option1, option2, ..., optionN]{fibeamer}
```

The following list summarizes the options that are recognized by the fibeamer theme and their meaning. Options that are enabled by default are *set in italics*.

faculty=⟨name⟩ This option changes the color theme based on the selected faculty. To choose the color theme of the Faculty of Informatics, use **fi** as the ⟨name⟩.

fonts This option sets up the combination of the font families of Carlito, Arev, Iwona, Dsfont, and DejaVu for the typesetting of text and mathematics.

nofonts This option prevents fibeamer from setting up the fonts. The user must set the fonts manually in the preamble of the document.

The Faculty of Informatics has licensed the Comenia font family. If you wish to use it in your thesis, you should contact Doc. RNDr. Petr Sojka, Ph.D.

If you are typesetting your thesis on a public-access computer at the Faculty of Informatics or on the `aisa.fi.muni.cz` Linux server, you can use the commercial Math Time mathematical font family, which goes well with the TeX Gyre Termes text font family. To use Math Time and TeX Gyre Termes within your thesis, the preamble of your document should look as follows:

```
\documentclass{beamer}
\usetheme[nofonts, ...]{fibeamer}
\usepackage[utf8]{inputenc}
\usepackage{cmap}
\usepackage[T1]{fontenc}
\usepackage{tgtermes}
```

```
\usepackage{mathtime}
%% Here goes the rest of the document.
```

microtype This option sets up microtypographic extensions[1], which results in visually more pleasing paragraphs of text.

nomicrotype This option prevents fibeamer from setting up microtypographic extensions.

The complete list of the package options can be found in Section 2 of the technical documentation of the fibeamer class [7].

1. For more information about the TEX engine microtypographic extensions, see `http://mirrors.ctan.org/macros/latex/contrib/microtype/microtype.pdf`.

Bibliography

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