



# The UHCullen Beamer Theme

v. 1.3.0

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## Introduction

License

## Installation

Source files

Local and Global installation

Required Packages

## User Interface

Loading Beamer

Loading the Theme and Theme Options

TeX Compiler

Customize images

## Examples

Introduction

Installation

User Interface

Examples

- ▶ This template is inspired by **Feather theme** . Some of the implementations are copied from **sidebar outer theme** and **miniframes outer theme** . The GPLv3 is copied from the original templates to this one.

Introduction

License

Installation

User Interface

Examples

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- ▶ The beamer (default) style of this template is modified according to the standard of **UH Cullen PPT templates** . Three different styles are implemented as beamer mode, trans mode, and handout mode.

Introduction

License

Installation

User Interface

Examples

- ▶ This template is inspired by **Feather theme** . Some of the implementations are copied from **sidebar outer theme** and **miniframes outer theme** . The GPLv3 is copied from the original templates to this one.
- ▶ The beamer (default) style of this template is modified according to the standard of **UH Cullen PPT templates** . Three different styles are implemented as beamer mode, trans mode, and handout mode.
- ▶ The rest of the theme is provided under the GNU General Public License v. 3 (GPLv3) <http://www.gnu.org/licenses/> . This means that you can redistribute it and/or modify it under the same license.

Introduction

License

Installation

User Interface

Examples

The basic theme contains 2 source files, they are shared by all modes:

- ▶ `beamerthemeUHCullen.sty`
- ▶ `beamercolorthemeUHCullen.sty`

The default beamer mode is provided by the following sub-themes. The template is designed based on the **Classic PPT template**. These files can be used individually.

- ▶ `beamerouterthemeUHCullenClassic.sty`
- ▶ `beamerinnerthemeUHCullenClassic.sty`

[Introduction](#)

[Installation](#)

[Source files](#)

[Local and Global installation](#)

[Required Packages](#)

[User Interface](#)

[Examples](#)

The basic theme contains 2 source files, they are shared by all modes:

- ▶ `beamerthemeUHCullen.sty`
- ▶ `beamercolorthemeUHCullen.sty`

The transparency (trans) mode is provided by the following sub-themes. Some styles are simplified in this mode. The template is designed based on the **Red-on-white PPT template**. These files can be used individually.

- ▶ `beamerouterthemeUHCullenColored.sty`
- ▶ `beamerinnerthemeUHCullenColored.sty`

Introduction

Installation

Source files

Local and Global installation

Required Packages

User Interface

Examples

The basic theme contains 2 source files, they are shared by all modes:

- ▶ `beamerthemeUHCullen.sty`
- ▶ `beamercolorthemeUHCullen.sty`

The handout mode is provided by the following sub-themes. This model provide minimal features and the simplest style. The template is designed based on the **Standard PPT template** . These files can be used individually.

- ▶ `beamerouterthemeUHCullenColored.sty`
- ▶ `beamerinnerthemeUHCullenColored.sty`

Introduction

Installation

Source files

Local and Global installation

Required Packages

User Interface

Examples



The theme can be installed for **local** or **global** use.

### Local Installation

- ▶ Local installation is the simplest way of installing the theme.
- ▶ You need to placing the 8 source files in the same folder as your presentation. When you download the theme, the 8 theme files are located in the `local` folder.

### Global Installation

- ▶ If you wish to make the theme globally available, you must put the files in your local latex directory tree. The location of the root of the local directory tree depends on your operating system and the latex distribution.
- ▶ Detailed steps on how to proceed installation under various operating systems can be found at Beamer documentation.

Introduction

Installation

Source files

Local and Global installation

Required Packages

User Interface

Examples

For using the basic UHCullen Theme you will need the Bemaer class installed and the following 5 packages

- ▶ TikZ<sup>1</sup>
- ▶ tcolorbox<sup>2</sup>
- ▶ datetime<sup>3</sup>
- ▶ textcase<sup>4</sup>
- ▶ calc<sup>5</sup>

These packages are required to be included in your  $\text{\LaTeX}$  distribution.

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<sup>1</sup>TikZ is a package for creating beautiful graphics. Have a look at these [online examples](#) or the [pgf user manual](#).

<sup>2</sup>tcolorbox is a package for creating customized blocks. To learn details, see [tcolorbox user manual](#).

<sup>3</sup>datetime is required for formatting the date.

<sup>4</sup>textcase is required for providing uppercase filter.

<sup>5</sup>calc is required for calculating the space and length of the object in this templates.

Introduction

Installation

Source files

Local and Global installation

Required Packages

User Interface

Examples

More required packages for advanced utilities:

- ▶ **Citation:** csquotes, biblatex<sup>1</sup>, cleveref<sup>2</sup>
- ▶ **Font:** fontenc
- ▶ **Environment:** float, algorithm, algorithmic, subfigure
- ▶ **Conditions:** ifthen, ifxetex
- ▶ **Others:** tabularx, array, siunitx, colortbl

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<sup>1</sup>biblatex is the best way to show citations in beamer, however, it may cause compatibility problems.

<sup>2</sup>cleveref is the best way to create auto references, however, it may cause compatibility problems.

Introduction

Installation

Source files

Local and Global installation

Required Packages

User Interface

Examples

### The Beamer Mode

The UHCullen can be loaded in two different beamer modes. The default mode is

```
\documentclass[<options>]{beamer}
```

Here <options> can be beamer (by default), trans, or handout.

### The Page Size

The size of the page can be configured in class options

```
\documentclass[aspectratio=169]{beamer}
```

```
\documentclass[aspectratio=43]{beamer}
```

According to the standard of UHCullen, we recommend users to use 16:9 in beamer (presentation) mode.

Introduction

Installation

User Interface

Loading Beamer

Loading the Theme and Theme Options

TeX Compiler

Customize images

Examples

### The Presentation Theme

The UHCullen Theme can be loaded in a familiar way. In the preamble of your tex file you must type `\usetheme[<options>]{UHCullen}`

The presentation theme loads the inner, outer and color UHCullen theme files and passes the `<options>` on to these files.

### The Inner and Outer Themes

Take the Classic Theme as an example. If you wish you can load only the inner, or the outer theme directly by

`\useinnertheme{UHCullenClassic}` (and it has no options)

`\useoutertheme[<options>]{UHCullenClassic}` (it has several options)

- details about the available options can be referred in the ReadMe file.

Introduction

Installation

User Interface

Loading Beamer

Loading the Theme and Theme Options

TeX Compiler

Customize images

Examples

### The Color Theme

Also you can load only the color theme by writing in the preamble of the tex file

- ▶ `\usecolortheme[font=<fontname>,color=<palette>]{UHCullen}`

The fonts and colors can be configured by options.

We can also change the colors of the various elements by

- ▶ Change the bar colors:

- `\setbeamercolor{UHCullen}{fg=<color>, bg=<color>}`

- ▶ Change the background colors:

- `\setbeamercolor{UHBackground}{fg=<color>, bg=<color>}`

- ▶ Change the color of the structural elements:

- `\setbeamercolor{structure}{fg=<color>}`

Introduction

Installation

User Interface

Loading Beamer

Loading the Theme and Theme Options

TeX Compiler

Customize images

Examples

## Preferred Compiler

The preferred compiler of this template is pdf<sub>La</sub>TeX. All features work properly with this compiler.

## Compatible mode

This template is also compatible with X<sub>La</sub>TeX. However, the following features may fall back to the compatible mode.

- ▶ The background of `Classic` outer theme may look slightly different due to the bug of `\tikzfading`.
- ▶ Some fonts like `helvetica` may fall back to alternatives.

Introduction

Installation

User Interface

Loading Beamer

Loading the Theme and Theme Options

TeX Compiler

Customize images

Examples

## The Title and Final Logo

- ▶ Use the following command to change the logo on the title page (the recommended w:h ratio is 5:2.):  
`\setTitleLogo{<path-to-the-logo>}`
- ▶ Use the following command to change the logo on the final page (the recommended w:h ratio is 14:1.):  
`\setFinalLogo{<path-to-the-logo>}`

Introduction

Installation

User Interface

Loading Beamer

Loading the Theme and Theme Options

TeX Compiler

Customize images

Examples



## The Frame Logo

- ▶ Use the following command to change the logo on each frame:  
`\setLogo{<path-to-the-logo>}`
- ▶ An optional argument could be specified for providing a different w:h ratio.):  
`\setLogo[<ratio>]{<path-to-the-logo>}`

Introduction

Installation

User Interface

Loading Beamer

Loading the Theme and Theme  
Options

TeX Compiler

Customize images

Examples

## The Title Images

There are three images (ImageA, ImageB, and ImageC) that can be changed on the title page of the Classic theme:

- ▶ For each image (like ImageA), a file path can be provided by:  
`\setTitleImageA{<path-to-the-file>}`
- ▶ More `\includegraphics` options can be given by the optional argument:  
`\setTitleImageA[<options>]{<path-to-the-file>}`

Introduction

Installation

User Interface

Loading Beamer

Loading the Theme and Theme Options

TeX Compiler

Customize images

Examples

## The Final Images

Only one image can be changed on the final page of the Classic theme:

- ▶ The image file path can be provided by:  
`\setFinalImage{<path-to-the-file>}`
- ▶ More `\includegraphics` options can be given by the optional argument:  
`\setFinalImage[<options>]{<path-to-the-file>}`

Introduction

Installation

User Interface

Loading Beamer

Loading the Theme and Theme Options

TeX Compiler

Customize images

Examples

► This is the template for UH slides, which includes:

- **Table:** Check table 1.
- **Figure:** Check fig. 1.
- **Block and Equation:** Check (1-1).
- **Theorem:** Check theorem 1.
- **Algorithm:** Check algorithm 1.

## Citation block

And here we would like to test the references: *Zeiler et al.*<sup>1</sup>, *Yang et al.*<sup>2</sup>, *Dong et al.*<sup>3</sup>.

<sup>1</sup>M. D. Zeiler, D. Krishnan, G. W. Taylor, and R. Fergus, "Deconvolutional networks," in 2010 IEEE Computer Society Conference on Computer Vision and Pattern Recognition, 2010, pp. 2528–2535. DOI: 10.1109/CVPR.2010.5539957.

<sup>2</sup>J. Yang, Z. Wang, Z. Lin, S. Cohen, and T. Huang, "Coupled dictionary training for image super-resolution," *IEEE Transactions on Image Processing*, vol. 21, no. 8, pp. 3467–3478, 2012, ISSN: 1057-7149. DOI: 10.1109/TIP.2012.2192127.

<sup>3</sup>C. Dong, C. C. Loy, K. He, and X. Tang, "Image super-resolution using deep convolutional networks," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 38, no. 2, pp. 295–307, 2016, ISSN: 0162-8828. DOI: 10.1109/TPAMI.2015.2439281.

Introduction

Installation

User Interface

Examples

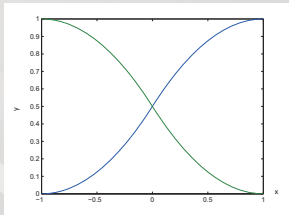
- ▶ Test table, which is shown in table 1.
- ▶ Another test, check whether there is a bug if using `\footcite` repeatedly<sup>1</sup>.

**Table 1:** Parameters of *Daubechies's* filter.

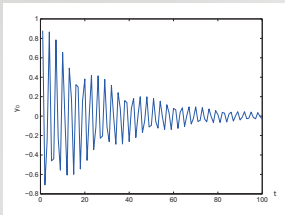
$n$	$h[n]$	$g[n]$
0	0.3327	-0.0352
1	0.8069	-0.0854
2	0.4599	0.1350
3	-0.1350	0.4599
4	-0.0854	-0.8069
5	0.0352	0.3327

<sup>1</sup>C. Dong, C. C. Loy, K. He, and X. Tang, "Image super-resolution using deep convolutional networks," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 38, no. 2, pp. 295–307, 2016, ISSN: 0162-8828. DOI: 10.1109/TPAMI.2015.2439281.

- ▶ Test the `\emph` style. Now **its behavior** should differ from the original `emph` style.
- ▶ Test inner subgraphs, i.e. fig. 1(a) and fig. 1(b).



(a)  $D = 1$



(b)  $D = 0.5$

Figure 1: Test graphs.

[Introduction](#)

[Installation](#)

[User Interface](#)

[Examples](#)

- Test blocked equations, i.e. (1-1), (1-2).

### SVM loss function

Here we show a simple example of subequations in (1-1):

$$\frac{\partial \mathcal{L}(\mathbf{w}, b)}{\partial \mathbf{w}} = \mathbf{w} + c \sum_i \frac{\partial \ell_i}{\partial \mathbf{w}}, \quad (1-1)$$

$$\frac{\partial \mathcal{L}(\mathbf{w}, b)}{\partial b} = c \sum_i \frac{\partial \ell_i}{\partial b}, \quad (1-2)$$

[Introduction](#)

[Installation](#)

[User Interface](#)

[Examples](#)

- Test theorems, i.e. theorem 1 and theorem 2.

### Theorem (Example Theorem 1)

*Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi.*

### Theorem (Example Theorem 2)

*Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi.*

Introduction

Installation

User Interface

Examples



- ▶ Test algorithm, i.e. algorithm 1.

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### Algorithm 1 DWT Algorithm

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**Input:** Sequence  $\mathbf{x}$  in time domain

**Output:** Sequence  $\hat{\mathbf{x}}$  in wavelet domain

- 1:  $N = \lfloor \log_2(\text{length}(\mathbf{x})) \rfloor$ ;
  - 2:  $\mathbf{c}_N = \mathbf{x}$ ,  $\hat{\mathbf{x}} = \emptyset$ ;
  - 3: **for**  $i$  from 1 to  $N$  **do**
  - 4:    $\mathbf{c}_{N-i}$ ,  $\mathbf{d}_{N-i} = \text{analysis\_filter}(\mathbf{c}_{N-i+1})$ ;
  - 5:   insert  $\mathbf{d}_{N-i}$  at the beginning of  $\hat{\mathbf{x}}$ .
  - 6: **end for**
- 

Introduction

Installation

User Interface

Examples

An aerial photograph of the University of Houston campus during sunset. The sky is a vibrant mix of orange, red, and purple. In the foreground, there are green lawns, trees with autumn-colored leaves, and several university buildings. A large red semi-transparent rectangle is overlaid on the upper half of the image, containing the text "Thank you!" and "It's time for Q&A.". The Houston skyline is visible in the background.

# Thank you!

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It's time for Q&A.

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