The UHCullen Beamer Theme

v. 1.1.0

Author 1[1], Author 2[2], · · ·
author1@gmail.com

[1]Affiliation 1
[2]Affiliation 2

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- 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.

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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.
- 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.

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.

- `beameroutherthemeUHCullenClassic.sty`
- `beamerinnerthemeUHCullenClassic.sty`

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`

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.

- `beameroutherthemeUHCullenColored.sty`
- `beamerinnerthemeUHCullenColored.sty`

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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.

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

- `TikZ`[1]
- `tcolorbox`[2]
- `datetime`[3]
- `textcase`[4]
- `calc`[5]

These packages are required to be included in your LaTeX distribution.

[1] TikZ is a package for creating beautiful graphics. Have a look at these online examples or the pgf user manual .
[2] tcolorbox is a package for creating customized blocks. To learn details, see tcolorbox user manual .
[3] datetime is required for formatting the date.
[4] textcase is required for providing uppercase filter.
[5] calc is required for calculating the space and length of the object in this templates.

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More required packages for advanced utilities:

- **Citation**: `csquotes`, `biblatex`[1], `cleveref`[2]
- **Font**: `fontenc`
- **Environment**: `float`, `algorithm`, `algorithmic`, `subfigure`
- **Conditions**: `ifthen`, `ifxetex`
- **Others**: `tabularx`, `array`, `siunitx`, `colortbl`

[1] biblatex is the best way to show citations in beamer, however, it may cause compatibility problems.
[2] cleveref is the best way to create auto references, however, it may cause compatibility problems.

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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.

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The Presentation Theme

The UHCullen Theme can be loaded in a familiar way. In the reamble 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 Outher Themes

Take the Classic Theme as an example. If you wish you can load only the inner, or the outher 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.

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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>}`

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Preferred Compiler

The preferred compiler of this template is pdfLaTeX. All features work properly with this compiler.

Compatible mode

This template is also compatible with XeLaTeX. 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 `helvetical` may fall back to alternatives.

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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>}`

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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>}`

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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>}`

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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>}`

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- 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.*[1], *Yang et al.*[2], *Dong et al.*[3].

[1] 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.

[2] 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.

[3] 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 table, which is shown in table 1.

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

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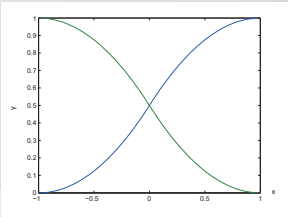
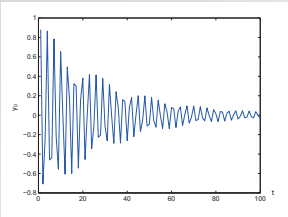
- Test inner subgraphs, i.e. fig. 1(a) and fig. 1(b).



(a) $D = 1$



(b) $D = 0.5$

Figure 1: Test graphs.

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

SVM loss function

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

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

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

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- 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, consectetuer adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi.

- Test algorithm, i.e. algorithm 1.

Algorithm 1 DWT Algorithm

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: $\mathbf{c}_N = \mathbf{x}$, $\hat{\mathbf{x}} = \varnothing$;
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**


Thank you!
It’s time for Q&A.
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