

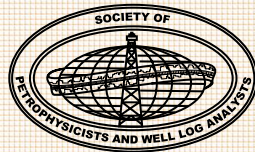
2022 SPRING TOPICAL CONFERENCE
PETROPHYSICAL MACHINE LEARNING

The SPWLA Beamer Theme

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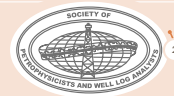
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Introduction

License



- ▶ This template is modified from [Feather theme](#) . The GPLv3 is copied from the original template to this one.

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Introduction

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- ▶ The beamer (default) style of this template is modified according to the standard of SPWLA 2022 conference. The original feather style is moved to 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.

Installation

Source files



The theme contains 4 source files:

- ▶ beamercolorthemeSPWLA.sty
- ▶ beamerouterthemeSPWLA.sty
- ▶ beamerinnerthemeSPWLA.sty
- ▶ beamerthemeSPWLA.sty

Installation

Local and Global installation

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



Installation

Local and Global installation



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Local Installation

- ▶ Local installation is the simplest way of installing the theme.
- ▶ You need to placing the 4 source files in the same folder as your presentation. When you download the theme, the 4 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.



Installation

Required Packages

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

- ▶ TikZ¹
- ▶ tcolorbox²
- ▶ datetime³
- ▶ textcase⁴
- ▶ calc⁵

Due to the fact that the packages are very common they should be included in your latex distribution in the first place.

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

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

³datetime is required for formatting the date.

⁴textcase is required for providing uppercase filter.

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

Installation

Required Packages

More required packages for advanced utilities:

- ▶ **Citation:** csquotes, biblatex¹, cleveref²
- ▶ **Font:** fontenc
- ▶ **Environment:** float, algorithm, algorithmic, subfigure
- ▶ **Others:** tabularx, array, siunitx, colortbl

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

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

User Interface

Loading Beamer with different mode

The Beamer Mode

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

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

Here <options> can be either beamer (by default) 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 SPWLA, we recommend users to use 16:9 in beamer (presentation) mode.

User Interface

Loading the Theme and Theme Options

The Presentation Theme

The SPWLA Theme can be loaded in a familiar way. In the preamble of your tex file you must type

```
\usetheme[<options>]{SPWLA}
```

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

The Inner and Outer Themes

If you wish you can load only the inner, or the outer theme directly by

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

```
\useoutertheme[<options>]{SPWLA} (it has one option)
```

```
progressstyle={fixedCircCnt or movingCircCnt}
```

- ▶ which set how the progress is illustrated;
- ▶ the value `movingCircCnt` is the default.

User Interface

Loading the Theme and Theme Options

The Color Theme

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

- ▶ `\usecolortheme[color=<palette>]{SPWLA}`

...or to change the colors of the various elements in the theme

- ▶ Change the bar colors:
`\setbeamercolor{SPWLA}{fg=<color>, bg=<color>}`
- ▶ Change the color of the structural elements:
`\setbeamercolor{structure}{fg=<color>}`
- ▶ Change the frame title text color:
`\setbeamercolor{frametitle}{fg=<color>}`
- ▶ Change the normal text color background:
`\setbeamercolor{normal text}{fg=<color>, bg=<color>}`

User Interface

Customize Images



The Optional Images

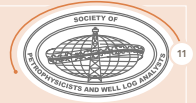
- ▶ Use the following command to change the final page background:
`\setFinalImage{<path-to-the-file>}`
- ▶ Use the following command to change the optional logo: `\setLogo{<path-to-the-logo>}`

The Title Image and Logo

Changing the title image or the logo is not supported in the command. If users insist to change them, they need to

- ▶ Replace the two title image files in the sub-folder: `./SPWLAGraphics`. The two images require to be 16:9 and 4:3 receptively.
- ▶ Replace the two logo files in the sub-folder: `./SPWLAGraphics`. The two logos require to be 1.64:1.

Official instructions



The following contents are official instructions copied from the original PPT template. Although Beamer has a legacy way to embed videos, we do not suggest users to do that.

PPT instructions

- ▶ The presenter optionally may choose to embed in the recorded presentation file one of the following:
 - ▶ Photograph (headshot) of the presenting presenter (limit to space allocated by white box in lower-right corner).
 - ▶ Video of the presenter presenting their recording (limit to space allocated by white box in lower-right corner).
 - ▶ No photograph or video (delete white box from all slides).

Official instructions

Text



Text

- ▶ All slide text must be legible.
- ▶ Font: Arial Narrow (default).
- ▶ Suggested font size:
 - ▶ First-level text: 28-pt minimum.
 - ▶ Second-level text: 24-pt minimum.
 - ▶ Font size of 16-pt or less is too small.
- ▶ Use as few words as possible to convey message.

Official instructions

Graphics



Graphics

- ▶ Graphics (illustrations, plots, etc.) and their text labels must be legible.
- ▶ Font: Font size for graphical text, labels, etc.: 24-pt recommended, 18-pt minimum.
- ▶ Plot axes identified with label and unit.
- ▶ Plots include legend where necessary to understand data.
- ▶ Well-log plots must include track headers (labels, units, and ranges).
- ▶ Well-log plots should focus or highlight depth interval of interest.

Examples

Citations



- ▶ 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.
- ▶ And here we would like to test the references: *Zeiler et al.*¹, *Yang et al.*², *Dong et al.*³.

¹M. 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.

²J. 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.

³C. 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.

Examples

Table



- Test table, which is shown in table 1.

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

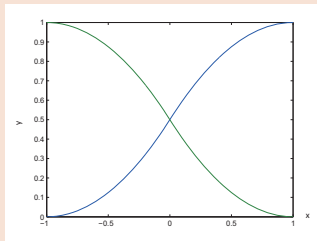
n	$h[n]$	$g[n]$
0	0.3327	-0.0352
1	0.8069	-0.0854
2	0.4599	0.1350
3	-0.1350	0.4599
4	-0.0854	-0.8069
5	0.0352	0.3327

Examples

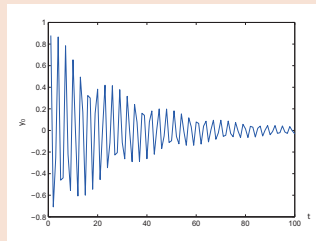
Figures



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



(a) $D = 1$



(b) $D = 0.5$

Figure 1: Test graphs.

Examples

Equations



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

SVM loss function

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

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

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

Examples

Theorems



- 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.

Examples

Algorithm

- ▶ 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: $\mathbf{c}_N = \mathbf{x}$, $\hat{\mathbf{x}} = \emptyset$;
 - 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**
-

The background image shows a large, light-colored stone building with a central tower and a red-tiled roof. In the foreground, there is a large, active fountain with multiple jets of water. A large, leafy tree is on the right side of the frame. The scene is set outdoors on a grassy area.

Thank you for listening!

It's time for Q&A.