Presentations with Beamer

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\texttt{GU} \texttt{conference} 2019
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The aim of this presentation is to show how to make beautiful presentations with LaTeX.
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Bad presentations: common errors for layout

Poor choice of decorating elements:
Bad presentations: common errors for layout

Poor choice of decorating elements:
- dark background (with gradient fill) and poor choice of font colours:
Bad presentations: common errors for layout

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- slides overfull of content:
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- slides overfull of content:
- great amounts of animations.
Bad presentations: common errors for layout

- Poor choice of decorating elements: dark background (with gradient fill) and poor choice of font colours:
- Slides overfull of content:
- Great amounts of animations.
Bad presentations: common errors for layout
Bad presentations: common errors for organization

- Bad calculation of time
Bad presentations: common errors for organization

- Bad calculation of time
  - too many slides
Bad presentations: common errors for organization

- Bad calculation of time
  - too many slides
  - too many data
Bad presentations: common errors for organization

- Bad calculation of time
  - too many slides
  - too many data
  - too many or too few preliminary informations

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Building a presentation with Beamer
Bad presentations: common errors for organization

- Bad calculation of time
  - too many slides
  - too many data
  - too many or too few preliminary informations

- No practice of presentations:
Bad presentations: common errors for organization

- Bad calculation of time
  - too many slides
  - too many data
  - too many or too few preliminary informations

- No practice of presentations:
  - slides read word by word
Bad presentations: common errors for organization

- **Bad calculation of time**
  - too many slides
  - too many data
  - too many or too few preliminary informations

- **No practice of presentations**:
  - slides read word by word
  - no underline of key terms
Bad presentations: common errors for organization

- Bad calculation of time
  - too many slides
  - too many data
  - too many or too few preliminary informations

- No practice of presentations:
  - slides read word by word
  - no underline of key terms
  - boring speaking style
Bad presentations: common errors for organization

- Bad calculation of time
  - too many slides
  - too many data
  - too many or too few preliminary informations

- No practice of presentations:
  - slides read word by word
  - no underline of key terms
  - boring speaking style
  - no contact with the audience.
Good presentations: Euclid tutorial

The Beamer class documentation begins with Euclid’s tutorial: tips for a good presentation.
Good presentations: Euclid tutorial

The Beamer class documentation begins with Euclid’s tutorial: tips for a good presentation.

- know the room
Good presentations: Euclid tutorial

The Beamer class documentation begins with Euclid’s tutorial: tips for a good presentation.

- know the room
- know the audience
The Beamer class documentation begins with Euclid’s tutorial: tips for a good presentation.

- know the room
- know the audience
- be aware of the time constraints
The Beamer class documentation begins with Euclid’s tutorial: tips for a good presentation.

- know the room
- know the audience
- be aware of the time constraints
- divide the presentation in
Good presentations: Euclid tutorial

The Beamer class documentation begins with Euclid’s tutorial: tips for a good presentation.

- know the room
- know the audience
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- divide the presentation in
The Beamer class documentation begins with Euclid’s tutorial: tips for a good presentation.

- know the room
- know the audience
- be aware of the time constraints
- divide the presentation in introduction,
Good presentations: Euclid tutorial

The Beamer class documentation begins with Euclid’s tutorial: tips for a good presentation.

- know the room
- know the audience
- be aware of the time constraints
- divide the presentation in introduction, main body,
Good presentations: Euclid tutorial

The Beamer class documentation begins with Euclid’s tutorial: tips for a good presentation.

- know the room
- know the audience
- be aware of the time constraints
- divide the presentation in introduction, main body, intermediate conclusions,
Good presentations: Euclid tutorial

The Beamer class documentation begins with Euclid’s tutorial: tips for a good presentation.

- know the room
- know the audience
- be aware of the time constraints
- divide the presentation in introduction, main body, intermediate conclusions, final conclusions
The Beamer class documentation begins with Euclid’s tutorial: tips for a good presentation.

- know the room
- know the audience
- be aware of the time constraints
- divide the presentation in introduction, main body, intermediate conclusions, final conclusions
- one slide $\iff$ one concept.
The structure

- Preamble with all other packages and users’ macros
The structure

- Preamble with all other packages and users’ macros
- **Body**, divided into sections and subsections with frames inserted in each part.
The preamble

Preamble

\documentclass{beamer}
\mode<presentation>
{\usepackage{Boadilla}
 \usecolortheme{albatross}
 \usefonttheme{serif}
 \usepackage[english]{babel}
 \usepackage[utf8]{inputenc}
 \usepackage[T1]{fontenc}
 \title[Short title]{Long Title}
 \date{26th October 2019}
 \author{Author 1 \inst{1}}
 \institute[Politecnico di Torino]{\inst{1} Department of Mathematics\\Politecnico di Torino}
 \pgfdeclareimage[height=0.5cm]{logo}{File name}
 \logo{\pgfuseimage{logo}}
Modes

- beamer
Modes

- beamer
- second
Modes

- `beamer`
- `second`
- `handout`
Modes

- beamer
- second
- handout
- trans
Modes

- beamer
- second
- handout
- trans
- article
Modes

- beamer
- second
- handout
- trans
- article
- all
Modes

- beamer
- second
- handout
- trans
- article
- all
- presentation
Themes

- themes
Themes

- themes
- outher themes
Themes

- *themes*
- *outer themes*
- *inner themes*
Themes

- themes
- oother themes
- inner themes
- color themes
Themes

- *themes*
- *outer themes*
- *inner themes*
- *color themes*
- *font themes*
The title section

Title section

\begin{frame}
\titlepage
\end{frame}
The document is divided in parts, sections and subsections
The document is divided in parts, sections and subsections

Structure

\section<beamer>{This section appears only in the \textless{} beamer \textgreater{} mode}
\section<handout>{This section exists only in the \textless{} handout \textgreater{} mode}
Each part, section or subsection contains **frames**, that can be structured in
Frames

Each part, section or subsection contains **frames**, that can be structured in

- *a sidebar*
Each part, section or subsection contains **frames**, that can be structured in

- a **sidebar**
- a **navigation bar**
Each part, section or subsection contains **frames**, that can be structured in

- a **sidebar**
- a **navigation bar**
- a **bottom bar**
Each part, section or subsection contains frames, that can be structured in

- a sidebar
- a navigation bar
- a bottom bar
- a upper bar
Each part, section or subsection contains frames, that can be structured in

- a sidebar
- a navigation bar
- a bottom bar
- a upper bar
- the frame title.
Creating a frame

\begin{frame}[
  allowframebreaks, \\
  allowdisplaybreak, \\
  {b,c,t}, fragile, \\
  shrink]
  
  \frametitle{Title}
  
  your text here
\end{frame}

\begin{frame}[
  allowframebreaks, \\
  allowdisplaybreak, \\
  {b,c,t}, fragile, \\
  shrink]
  \frametitle{Title}
  
  your text here
\end{frame}
Content can be displayed in different steps.
Overlays - 1

Content can be displayed in different steps. The main commands to achieve this purpose are:
Overlays - 1

Content can be displayed in different steps. The main commands to achieve this purpose are:

- \pause
Content can be displayed in different steps. The main commands to achieve this purpose are:

- \pause
- \onslide<...>{text}
Content can be displayed in different steps. The main commands to achieve this purpose are:

- \pause
- \onslide<...>{text}
- \only<...>{text}<...>
Content can be displayed in different steps. The main commands to achieve this purpose are:

- \pause
- \onslide<...>{text}
- \only<...>{text}<...>
- \uncover<...>{text} (visible, invisible)
Content can be displayed in different steps. The main commands to achieve this purpose are:

- \pause
- \onslide<...>{text}
- \only<...>{text}<...>
- \uncover<...>{text} (visible, invisible)
- \alt<...>{default text}{alternative text}<...>
Content can be displayed in different steps. The main commands to achieve this purpose are:

- \pause
- \onslide<...>{text}
- \only<...>{text}<...>
- \uncover<...>{text} (visible, invisible)
- \alt<...>{default text}{alternative text}<...>
- \temporal<...>{before slide text}{default text}{after slide text}
\setbeamercovered{\only<1-2>{\item a}
\only<3>{\item b}
\visible<4>{\item d}
\uncover<2-3>{\item c}
\end{itemize}
Overlays - 2

\setbeamercovered{\only<1>{\item a}}
\begin{itemize}
\uncover<1>{\item a}
\only<3>{\item b}
\visible<4>{\item d}
\uncover<2-3>{\item c}
\end{itemize}
\setbeamercovered{\only<1>{\item a}\only<3>{\item b}\visible<4>{\item d}\uncover<2-3>{\item c}}
\setbeamercovered{transparent=10}
\begin{itemize}
  \uncover<1>{\item a}
  \only<3>{\item b}
  \visible<4>{\item d}
  \uncover<2-3>{\item c}
\end{itemize}
 Commands with overlay specification

\begin{frame}
\textbf{bold line in all overlays}
\textbf{<2>{bold line only on the second overlay}}
\textbf{<3>{bold line only in the third overlay}}
\end{frame}
Commands with overlay specification

\begin{frame}
\textbf{bold line in all overlays}
\textbf{<2>{bold line only on the second overlay}}
\textbf{<3>{bold line only in the third overlay}}
\end{frame}


```latex
\begin{frame}
\textbf{bold line in all overlays}
\textbf{<2>{bold line \rightarrow }
\textbf{only on the second \rightarrow }
\textbf{overlay}}
\textbf{<3>{bold line \rightarrow }
\textbf{only in the third \rightarrow }
\textbf{overlay}}
\end{frame}
```

bold line in all overlays
bold line only on the second overlay
bold line only in the third overlay
\begin{frame}
\begin{theorem}<1->[\leftarrow Lagrange]
\text{text of the theorem}
\end{theorem}
\begin{proof}<2->
\text{proof of the theorem}
\end{proof}
\end{frame}
\begin{frame}
\begin{theorem}<1->[\leftarrow
    \begin{proof}<2->
    proof of the theorem
    \end{proof}
\end{theorem}
\end{frame}
List environments with overlay specification

\begin{itemize}[^{<+->}]
\item This item appears \textleft from the first \textleft overlay.
\item This item appears \textleft from the second \textleft overlay.
\item<1-> This item \textleft appears in the first \textleft overlay, as it is \textleft specified in the \textleft option of the item \textleft itself.
\item This item appears \textleft from the third \textleft overlay.
\end{itemize}
List environments with overlay specification

\begin{itemize}[<+->]
\item This item appears from the first overlay.
\item This item appears from the second overlay.
\item<1-> This item appears in the first overlay, as it is specified in the option of the item itself.
\item This item appears from the third overlay.
\end{itemize}

- This item appears from the first overlay.
- This item appears from the second overlay.
- This item appears in the first overlay, as it is specified in the option of the item itself.
List environments with overlay specification

\begin{itemize}[<+->]
\item This item appears \leftarrow from the first \leftarrow overlay.
\item This item appears \leftarrow from the second \leftarrow overlay.
\item<1-> This item \leftarrow appears in the first \leftarrow overlay, as it is \leftarrow specified in the \leftarrow option of the item \leftarrow itself.
\item This item appears \leftarrow from the third \leftarrow overlay.
\end{itemize}

- This item appears from the first overlay.
- This item appears from the second overlay.
- This item appears in the first overlay, as it is specified in the option of the item itself.
- This item appears from the third overlay.
\begin{itemize}
\item This item appears \textcolor{blue}{\begin{itemize}\textitem{alert@+>}
\end{itemize}} in the first overlay colored in blue.
\item This item appears \textcolor{blue}{\begin{itemize}\textitem{alert@+>}
\end{itemize}} in the second overlay colored in blue, while the first one becomes black.
\item This item appears \textcolor{blue}{\begin{itemize}\textitem{alert@+>}
\end{itemize}} in the third overlay colored in blue, while the first and second ones become black.
\end{itemize}
Highlighting - 1

\begin{itemize}
\item This item appears in the first overlay colored in blue.
\item This item appears in the second overlay colored in blue, while the first one becomes black.
\item This item appears in the third overlay colored in blue, while the first and second ones become black.
\end{itemize}
\begin{itemize}[<-+->]
\item This item appears in the first overlay colored in blue.
\item This item appears in the second overlay colored in blue, while the first one becomes black.
\item This item appears in the third overlay colored in blue, while the first and second ones become black.
\end{itemize}
Highlighting - 2

\begin{itemize}
\item <2-> alert<2> {Item\rightarrow 1 appears on the \rightarrow second overlay, in \rightarrow blue.}
\item <2-> alert<3> {Item\rightarrow 2 appears on the \rightarrow second overlay, and \rightarrow it is blue on the \rightarrow third one.}
\item <2-> alert<4> {Item\rightarrow 3 appears on the \rightarrow second overlay, and \rightarrow it is blue on the \rightarrow fourth one.}
\end{itemize}
Highlighting - 2

\begin{itemize}
\item \texttt{\textbackslash alert<2>}{ Item 1 appears on the second overlay, in blue.}
\item \texttt{\textbackslash alert<3>}{ Item 2 appears on the second overlay, and it is blue on the third one.}
\item \texttt{\textbackslash alert<4>}{ Item 3 appears on the second overlay, and it is blue on the fourth one.}
\end{itemize}

- Item 1 appears on the second overlay, in blue.
- Item 2 appears on the second overlay, and it is blue on the third one.
- Item 3 appears on the second overlay, and it is blue on the fourth one.


\begin{itemize}
\item Item 1 appears on the second overlay, in blue.
\item Item 2 appears on the second overlay, and it is blue on the third one.
\item Item 3 appears on the second overlay, and it is blue on the fourth one.
\end{itemize}
Highlighting - 2

- Item 1 appears on the second overlay, in blue.
- Item 2 appears on the second overlay, and it is blue on the third one.
- Item 3 appears on the second overlay, and it is blue on the fourth one.
Highlighting - 3

\textbf{Bold text}

\textit{Italic text}

\textcolor{magenta}{Magenta text}

\alert{Text highlighted with the \texttt{alert} command}

\structure{Text highlighted with the \texttt{structure} command}
Highlighting - 3

\textbf{Bold text}

\textit{Italic text}

\textcolor{magenta}{Magenta text}

\alert{Text highlighted with the \texttt{alert} command}

\structure{Text highlighted with the \texttt{structure} command}
Verbatim mode

\begin{frame} [fragile]
\begin{verbatim}
verbatim text
\end{verbatim}
\end{frame}
Verbatim mode

\begin{frame}[	exttt{fragile}]
\begin{verbatim}
verbatim text
\end{verbatim}
\end{frame}

% Alternatively, you can use the semiverbatim environment:
\begin{frame}
\begin{semiverbatim}
verbatim text
\end{semiverbatim}
\end{frame}
Images

\includegraphics[scale=.1]{leone-1} \%% this image appears on all overlays
\includegraphics<2->{duck-42-48} \%% this image appears from the second overlay
\pgfdeclareimage[width=4cm]{image3}{linux_PNG}
\pgfdeclareimage[width=2cm]{image4}{CCFB.Kindle.0}
\uncover<3>{\pgfuseimage{image3} \%% this image appears from the third overlay}
\only<4>{\pgfuseimage{image4} \%% this image appears only on the fourth overlay}
Images

\includegraphics[scale=.1]{leone-1} %%% this image appears on all overlays
\includegraphics<2->{duck-42-48} %%% this image appears from the second overlay
\pgfdeclareimage[width=4cm]{image3}{linux_PNG}
\pgfdeclareimage[width=2cm]{image4}{CCFB_Kindle.0}
\uncover<3>{\pgfuseimage{image3}} %%% this image appears from the third overlay
\only<4>{\pgfuseimage{image4}} %%% this image appears only on the fourth overlay
Images

\includegraphics[scale=.1]\leftarrow{leone-1}%%% this image \leftarrow appears on all overlays \\
\includegraphics<2->{duck\leftarrow-42-48}%%% this image \leftarrow appears from the second \leftarrow overlay \\
\pgfdeclareimage[width=4cm]{image3}{Linux_PNG\leftarrow 9} \\
\pgfdeclareimage[width=2cm]{image4}{CCFB_Kindle.0} \\
\uncover<3>\{\pgfuseimage{image3}%%% this image \leftarrow appears from the third \leftarrow overlay \\
\only<4>\{\pgfuseimage{image\leftarrow 4}%%% this image appears\leftarrow only on the fourth \leftarrow overlay}
Images

\includegraphics[scale=.1]{leone-1} \textit{this image appears on all overlays}
\includegraphics<2->[duck = 42-48]{duck-42-48} \textit{this image appears from the second overlay}
\pgfdeclareimage[width=4cm]{image3}{linux_PNG-9}
\pgfdeclareimage[width=2cm]{image4}{CCFB_Kindle.0}
\uncover<3>{\pgfuseimage{image3}} \textit{this image appears from the third overlay}
\only<4>{\pgfuseimage{image4}} \textit{this image appears only on the fourth overlay}
The package lxfonts by Claudio Beccari

\usefonttheme{\leftarrow professionalfonts}
\usepackage{lxfonts}

LXfonts-demo