

A SMALL THEME FOR MODERN SLIDES

# Cookie Beamer Theme

A LuaLaTeX Beamer theme with modern visuals

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ROADMAP

# Agenda

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- 1 Design system
- 2 Content patterns
- 3 Configuration
- 4 References

TOC



1

# Design system

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# 1 A theme for modern talks

## AWESOME-STYLE FRAME

Number rails, angled title art, and section slides are built in.

## METROPOLIS DEFAULTS

Progress bars, block styles, and fonts are set from theme options.

## LUALATEX SETUP

Uses installed system fonts, Unicode math, and no private package paths.

single .sty

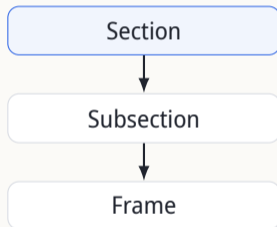
LuaLaTeX

old-deck friendly

# 1 Navigation stays visible

Long titles and subtitles fit the header

- The rail shows the current section, or section.subsection when needed.
- The footer keeps author, title, section, and frame count out of the slide body.
- Section pages mark turns in the talk without adding clutter to every frame.



- State the main point first.
  - Add the detail that changes the argument.
    - Keep the third level short.
- Return to the main thread.

Tutaj jest krótki tekst po polsku z polskimi znakami: zażółć gęślą jaźń.

The quick, brown fox jumps over a lazy dog.

1. Define the object.
2. Prove the useful property.
3. Use it in the example.

# Components

## 1.1 Blocks and emphasis

### A plain block

Use this for assumptions, notation, or a short claim.

### An example block

Use this for computations, test cases, or constructions.

### An alert block

Use this for a warning, failed case, or decision point.

### Standard syntax

Cookie uses Beamer's normal `\begin{block}{Title}` form.

## 1.1 Definitions, theorems, and proofs

### Definition (Divisibility)

For integers  $a, b$ , write  $a \mid b$  exactly when  $\exists c \in \mathbb{Z}$  such that  $ac = b$ .

### Theorem

*Every integer divides zero:  $\forall a \in \mathbb{Z}, a \mid 0$ .*

### Proof.

Choose  $c = 0$ . Then  $a \cdot c = a \cdot 0 = 0$  for every integer  $a$ .



# 1.1 Mathematics and numerals

## LINING

1234567890

$$\frac{1}{1 + \frac{1}{2 + \frac{1}{3 + x}}} + \frac{1}{1 + \frac{1}{2 + \frac{1}{3 + x}}}$$

$$\iint_{\mathbf{x} \in \mathbb{R}^2} \langle \mathbf{x}, \mathbf{y} \rangle d\mathbf{x}$$

$$e^x \approx 1 + x + x^2/2! + x^3/3! + x^4/4!$$

## OLDSTYLE

1234567890

## ACCENTS

$\hat{x}$ ,  $\check{x}$ ,  $\tilde{a}$ ,  $\bar{a}$ ,  $\dot{y}$ ,  $\ddot{y}$

$$\overline{\overline{a\alpha^2 + b\beta + d\delta}}$$

## DIFFERENTIALS

$$\iiint f(x, y, z) dx dy dz$$

$$F : \begin{vmatrix} F''_{xx} & F''_{xy} & F'_x \\ F''_{yx} & F''_{yy} & F'_y \\ F'_x & F'_y & 0 \end{vmatrix} = 0$$

$]0, 1[ + [x] - \langle x, y \rangle$

$$\binom{n+1}{k} = \binom{n}{k} + \binom{n}{k-1}$$

$$p(R, \phi) \sim \int_{-\infty}^{\infty} \frac{\tilde{W}_n(\gamma) \exp[iR/a(\sqrt{k^2 a^2 - \gamma^2} \cos \phi)]}{(k^2 a^2 - \gamma^2)^{3/4}} \times \frac{1}{H_n^{(1)}(\sqrt{k^2 a^2 - \gamma^2})} d\gamma.$$

## 1.1 Code is part of the slide

### Scalar C

```
void square4(float *x) {  
    for (int i = 0; i < 4; ++i) {  
        x[i] = x[i] * x[i];  
    }  
}
```

### What the theme sets

- Noto Sans Mono when it is installed
- Line wrapping and padding inside the box
- Colors for keywords, strings, and comments

listings

no shell escape

## 1.1 Longer code listing

The title wraps without changing the code box

### Sleep sort sketch

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>

int main(int argc, char **argv) {
    while (--argc > 1 && !fork())
        sleep(atoi(argv[argc]));

    puts(argv[argc]);
    return 0;
}
```

# 1.1 Projected gradient descent

Line numbers and comments stay readable

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## Algorithm 1: Projected gradient descent

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**Input:** Objective  $f$ , feasible set  $C$ , initial point  $x_0$ , step sizes  $\eta_t$

**Output:** Approximate minimizer  $x_t$

```
1 for  $t = 0, 1, \dots, T - 1$  do
2    $g_t \leftarrow \nabla f(x_t);$  // gradient at the current iterate
3    $y_{t+1} \leftarrow x_t - \eta_t g_t;$ 
4    $x_{t+1} \leftarrow \Pi_C(y_{t+1});$  // project back onto C
5   if  $\|x_{t+1} - x_t\| < \varepsilon$  then
6     return  $x_{t+1};$ 
7 return  $x_T;$ 
```

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# 1.1 RealBoost sketch

A compact algorithm with math updates

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## Algorithm 2: RealBoost training loop

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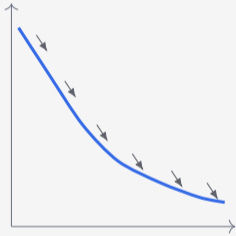
**Input:** Training data  $(x_i, y_i)_{i=1}^m$ , rounds  $T$

**Output:** Classifier  $F$

- 1 Initialize weights  $w_i \leftarrow 1/m$ ;
  - 2 **for**  $t = 1, \dots, T$  **do**
  - 3     Fit  $f_t(x) \in \mathbb{R}$  using the current weights;
  - 4     Set  $Z_t \leftarrow \sum_{i=1}^m w_i \exp(-f_t(x_i)y_i)$ ;
  - 5     Update  $w_i \leftarrow w_i \exp(-f_t(x_i)y_i) / Z_t$  *// normalize*
  - 6 **return**  $F(x) = \sum_{t=1}^T f_t(x)$ ;
-

# 1.1 Two trajectories side by side

## Minimum fuel



A smoother curve uses less fuel.

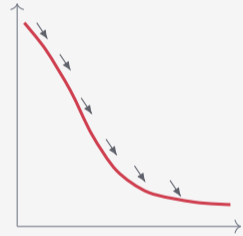
## SAME DYNAMICS

**Left:** minimize fuel.

**Right:** minimize time.

The middle column names the tradeoff; the figures do the rest.

## Minimum time



A steeper curve reaches the target sooner.

## 1.1 Frame-local background images

Full canvas with readable text

Use a photo, diagram, texture, or generated image on one frame without setting a deck-wide background.

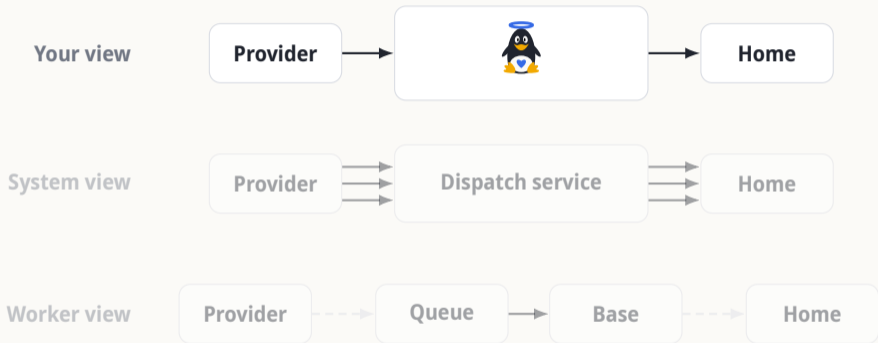
Set the wash color and opacity for contrast. Use local colors when the frame needs light text.

### Frame syntax

```
\begin{frame}[  
  bgimage=photo.jpg,  
  bgoverlay=cookieInk,  
  bgoverlayopacity=.56  
]
```

# 1.1 Show one layer at a time

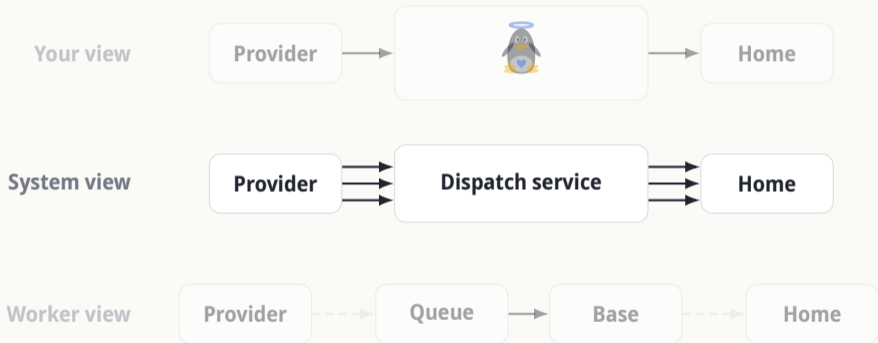
The geometry stays fixed across overlays



Start with the audience's view of the system.

# 1.1 Show one layer at a time

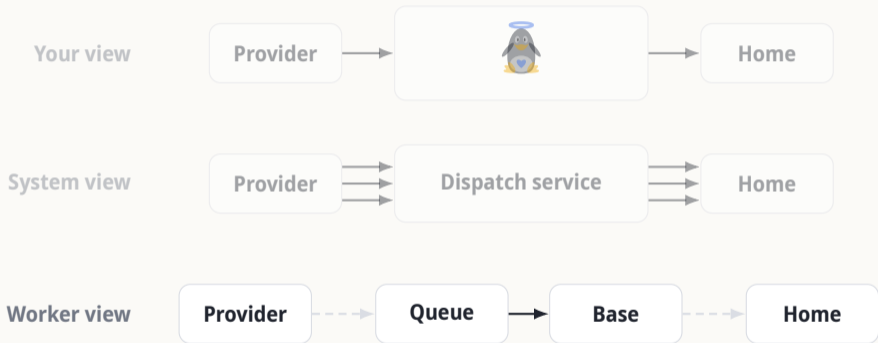
The geometry stays fixed across overlays



Then show the service boundary.

# 1.1 Show one layer at a time

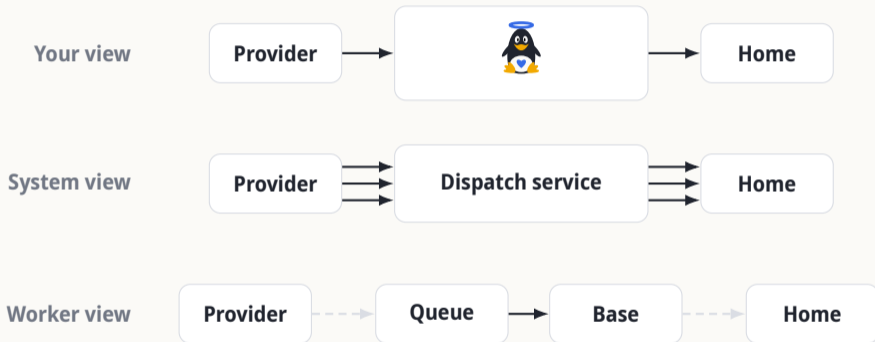
The geometry stays fixed across overlays



Add worker detail when it helps explain the failure mode.

# 1.1 Show one layer at a time

The geometry stays fixed across overlays



End with all rows visible so the views can be compared.

## Overlays

## 1.2 Reveal without moving the layout

Request

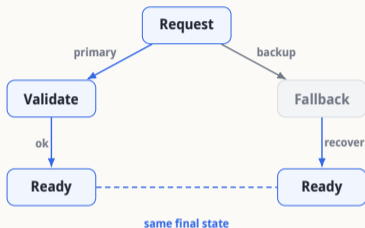
- [Reserve the canvas](#). The request node anchors every overlay.

## 1.2 Reveal without moving the layout



- **Reserve the canvas.** The request node anchors every overlay.
- **Reveal branches.** The primary path carries the accent; fallback stays muted.

## 1.2 Reveal without moving the layout

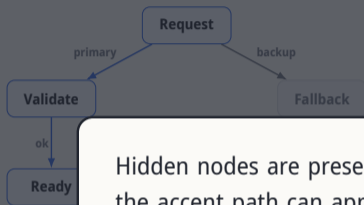


- **Reserve the canvas.** The request node anchors every overlay.
- **Reveal branches.** The primary path carries the accent; fallback stays muted.
- **Show convergence.** Both paths end in the same user-visible state.

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**Primary** request → validate → ready  
**Fallback** request → fallback → ready

## 1.2 Reveal without moving the layout



- Reserve the canvas. The request node anchors every overlay.

### Overlay rule

Hidden nodes are present from the first overlay. Each step changes opacity, so the accent path can appear without moving the text.

**Primary** request → validate → ready  
**Fallback** request → fallback → ready

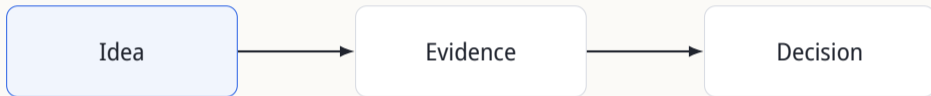
# 2

## Content patterns

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## 2 Let the footer carry progress



The footer shows location and frame count; the slide can stay on the current step.

Feature	None	Simple	Progress
Section page	✓	✓	✓
Subsection page	✓	✓	✓
Progress bar	head	title	foot
Frame numbering	none	count	fraction

Use `booktabs` for rules and `tabularx` for width. Cookie only sets spacing and color.

## 2

# A larger table

Booktabs rules and aligned numeric columns

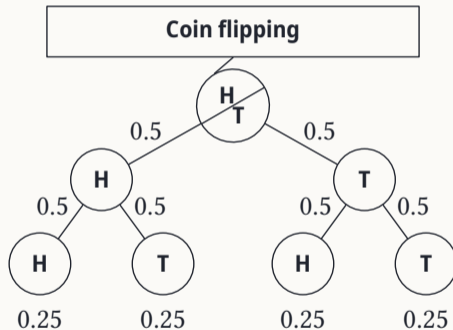
Faculty	With T <sub>E</sub> X	Total	%
Informatics	1 716	2 904	59.09
Science	786	5 275	14.90
Economics	64	4 591	1.39
Arts	69	10 000	0.69
Medicine	8	2 014	0.40
Law	15	4 824	0.31
Education	19	8 219	0.23
Social studies	12	5 599	0.21
Sports studies	3	2 062	0.15

Example data adapted from a university thesis-count table.

## 2

# A probability tree

TikZ diagram adapted from the source example



**One idea per slide.**

*A good slide should make the argument easier to see.*

— Cookie design principle

A quote works best as a turn in the talk. Don't use too many!

## 2 Speaker notes live in the source

Use `notes=second` for presenter mode

### Inside any frame

The audience sees this.

```
\note{
  Remember why this slide matters.
  Add timing, transitions, and questions
  here.
}
```

### Output modes

<code>notes=hide</code>	slides only
<code>notes=show</code>	slides plus notes
<code>notes=second</code>	presenter layout
<code>notes=only</code>	notes pages only

[native Beamer](#)

[styled notes page](#)

# 3

## Configuration

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### 3 Options in one place

#### Layout

<code>progressbar</code>	<code>none, head, frametitle, foot</code>
<code>numbering</code>	<code>none, counter, fraction</code>
<code>numberrail</code>	<code>none, section, subsection</code>
<code>covered</code>	<code>invisible, transparent</code>
<code>notes</code>	<code>hide, show, second, only</code>
<code>toc</code>	<code>none, aftertitle</code>

#### Appearance

<code>accent</code>	<code>any xcolor name</code>
<code>background</code>	<code>light, dark</code>
<code>block</code>	<code>transparent, fill</code>
<code>numberrailcolor</code>	<code>muted, accent</code>
<code>titleformat</code>	<code>regular, smallcaps, allcaps</code>

Compatibility aliases such as `secslide`, `subsecslide`, `notoc`, and `coloraccent` make older awesome-beamer decks easier to move.

## 3 Two background commands

### Title-page wedge

```
\cookietitleimage{image.jpg}
```

Clips the image into Cookie's asymmetric title art.

### Ordinary frames

```
bgimage=image.jpg
```

Add the frame keys you need:

```
bgfit=cover
```

```
bgoverlay=cookieInk
```

```
bgoverlayopacity=.56
```

### Global background

`\cookiebackgroundimage{image.jpg}` applies an image to later frames.

`\cookieclearbackgroundimage` removes it.

## 3 Build the demo with LuaLaTeX

### LOCAL BUILD

#### Repository command

```
latexmk demo.tex
```

- The local `.latexmkrc` selects LuaLaTeX and Biber for this demo.
- `latexmk` reruns TeX when section, frame, QR, or bibliography data changes.
- If you copy only the theme file into another deck, build that deck with LuaLaTeX.

# 4

## References

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## 4 Citations use normal BibLaTeX

No theme-specific bibliography syntax

Cookie is still ordinary Beamer: the typesetting stack builds on  $\text{T}_\text{E}\text{X}$  (Knuth 1984),  $\text{L}_\text{A}\text{T}_\text{E}\text{X}$  (Lamport 1994), and Beamer (Tantau et al. 2025).

The design borrows progress bars from Metropolis (Vogelgesang 2015) and the numbered slide grammar of awesome-beamer (Pietzschmann 2024).

### Source setup

```
\usepackage[backend=biber,style=authoryear]{biblatex}  
\addbibresource{refs.bib}
```

## 4 References I

- Knuth, Donald E. (1984). *The TeXbook*. Addison-Wesley.
- Lamport, Leslie (1994). *LaTeX: A Document Preparation System*. 2nd ed. Addison-Wesley.
- Pietzschmann, Lukas (2024). *Awesome-Beamer*. URL:  
<https://github.com/LukasPietzschmann/awesome-beamer> (visited on 06/21/2026).
- Tantau, Till, Joseph Wright, and Vedran Miletić (2025). *The Beamer Class: User Guide for Version 3.76*. The LaTeX Project. URL: <https://ctan.org/pkg/beamer>.
- Vogelgesang, Matthias (2015). *Metropolis: A Modern Beamer Theme*. URL:  
<https://github.com/matze/mtheme> (visited on 06/21/2026).

# Thank you

Questions, forks, and bug reports are welcome.

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Replace with your project URL

