Giving a Presentation

Wolfram Burgard

Outline

- The slides
  - Content
  - Layout
- The presentation

The Slides

- Typically done long before the presentation
- and long enough to practice
- They are used to better convey the message

- Their purpose is not to allow you to read off what you want to say

Choosing a Proper Title is Hard

- The title of a slide often says what is on the slide
- You actually can to better: Use the title to convey a message
- The title should better tell the message of the slide.

- Choosing a Proper Title is hard

vs.

- What is a Proper Title?

The Structure of Scientific Presentations is often Similar

1. Introduction and Motivation
2. State of the Art
3. Our Approach
4. Results
5. Conclusions and Future Work

- This/such a slide is contained in many presentations
- Maybe it is better to leave it out if your presentation is short.

Introduction and Motivation

Describe

- the problem
- why it is relevant
- the open question
- in which way the approach you present gives an answer to this question

State of the Art

- Mention relevant approaches presented in the past.
- Tell in which way the approach presented in this paper goes beyond the previous ones.
- The art lies in finding the right balance when describing related work
- Say what the approaches do and what they solve (be friendly, make the authors happy!)
- Say in which way your approach is better (do not make the authors unhappy!)

The Approach

- This part of the presentation is not intended to demonstrate your skills
- It is intended to let the audience understand how your approach works
- Provide the audience with an intuition!
- Use graphics to describe it!
- Explain the math using graphics!

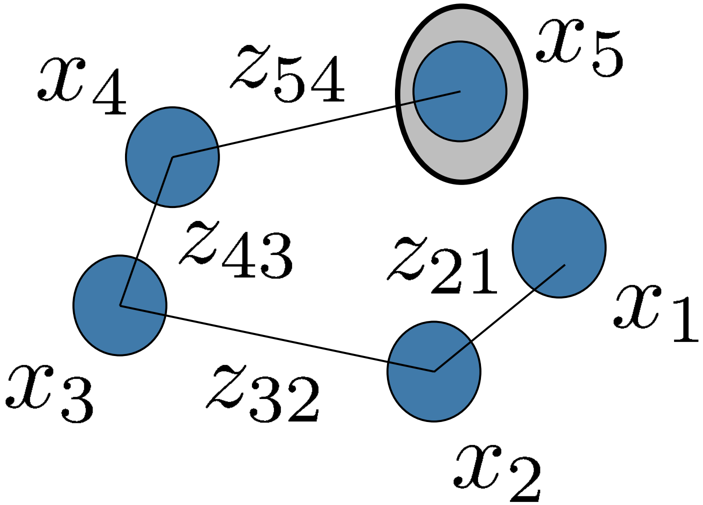
Example: Graph-based SLAM

- Let $\mathcal{G} = (\mathbf{x}, \mathbf{z})$ be a graph where $\mathbf{x} = \{x_1, \ldots, x_n\}$ is a set of poses and $\mathbf{z} = \{z_{ji}\}$ is a set of pairwise observations of poses j and i, where Ω_{ji} is the corresponding measurement uncertainty.
- Furthermore let e_{ji} be the errors between the pairwise observations z_{ji} and the relative poses x_{ji}
- Goal: Find $\mathbf{x}^* = \underset{\mathbf{x}}{\operatorname{argmin}} \sum_{ji} e_{ji}^T \Omega_{ji} e_{ji}$

Maybe Better: Graphical Example

Given:

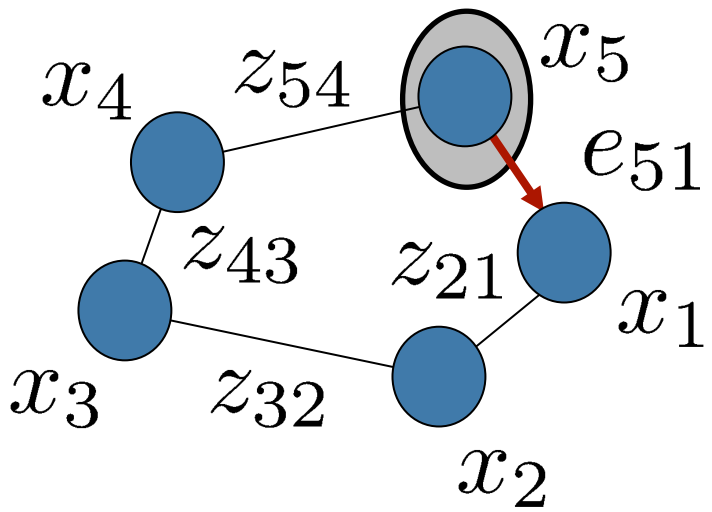
- Poses $\mathbf{x} = \{x_1, \ldots, x_n\}$
- Pairwise observations: $\mathbf{z} = \{z_{ji}\}$
- Measurement uncertainty Ω_{ji}



Maybe Better: Graphical Example

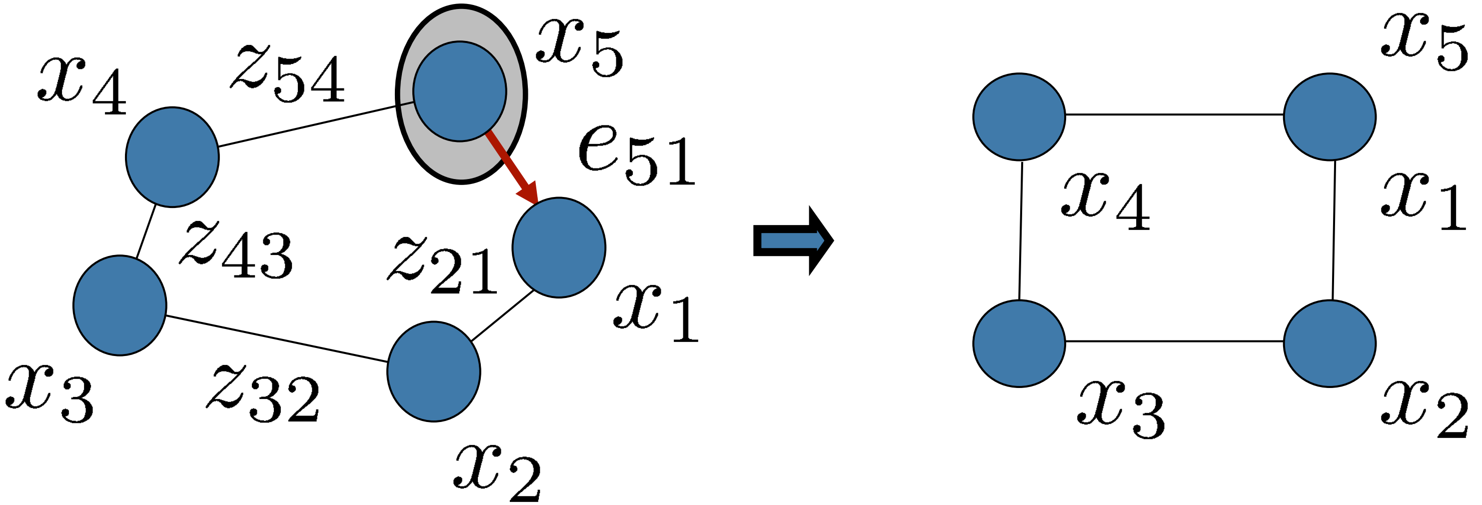
Given:

- Additionally we observe that $x_5 = x_1$
- This introduces the error: e_{51}



Maybe Better: Graphical Example

- More generally, we have an error e_{ji} for every pairwise observation z_{ji} given the positions $\mathbf{x}$ of the nodes
- Goal: Find $\mathbf{x}^* = \operatorname{argmin}_{\mathbf{x}} \sum_{ji} e_{ji}^T \Omega_{ji} e_{ji}$



Algorithms are Hard to Explain

Algorithm 1 Coverage(S)

$C \leftarrow S$ *//Set the current node to S*
$\mathcal{P}_{aux} \leftarrow C$
$\mathcal{P} \leftarrow \emptyset$
while 1
  $\forall n \in \mathcal{P}_{aux},\ m \in \mathcal{N},\ \|c_n - c_m\| < M_{\mathrm{R}} \cdot e_{\mathrm{cell}}$
    $\textbf{visited}(m) = 1$
  $\forall n \in \mathcal{P}_{aux},\ m \in \mathcal{N},\ \|c_n - c_m\| < 2M_{\mathrm{R}} \cdot e_{\mathrm{cell}}$
    $\textbf{overlapped}(m) = 1$
  $\mathcal{N}_C \leftarrow \{n \in \mathcal{N} \mid \|c_n - c_C\|_\infty = (2M_{\mathrm{R}} + 1) \cdot e_{\mathrm{cell}}$
    and $\textbf{overlapped}(n) = 0$ and $g(n) < \infty\}$
  if $\mathcal{N}_C \neq \emptyset$
    find $M \in \mathcal{N}_C$ with minimal g
  else
    D*'(C) and stop at $\textbf{visited}(M) = 0$
      or $\|c_M - c_o\|_\infty = e_{\mathrm{cell}},\ o \in \mathcal{O}$ and $\exists n,$
      $\textbf{visited}(n) = 0, \|c_M - c_n\| < M_{\mathrm{R}} \cdot e_{\mathrm{cell}}$
    if no such node M exists
      return $\mathcal{P}$
    end
  end
  $\mathcal{P}_{aux} \leftarrow \mathcal{P}_{aux}(C, M)$
  $C \leftarrow M$ *//Set the new current node*
  $\mathcal{P} \leftarrow \mathcal{P} \cup \mathcal{P}_{aux}$
end

[Dakulovic et al., IFAC 2011]

Explaining Algorithms

- Describe the idea
- Give examples to describe how it works
- Design the examples so that all features of the algorithms can be explained
- Once you are done with the examples, the audience should have an idea how it works

The Results

- The results should back up your claims
- With them you show/demonstrate that your approach has the desired features.
- They should clearly demonstrate that the approach you present is better than previous ones.

The Conclusions and Future Work

- Tell what the contribution of this paper is
- A good first sentence starts with “We presented a novel approach to …”
- Tell what has been described in the presentation/paper
- Maybe talk about limitations that might lead to future work

Seminar Talks about Other People's Work

- You might add slides describing your opinion about the paper.
- Tell what you regard as positive aspects
- Tell which potential improvements you see
- What would you have done differently?

Text

- Use sans serif fonts instead of serif fonts
- Use
  - dark text on light background (easy to read)
  - light text on dark background (not so easy to read)

Left-aligned text is easier to read than centered text

- Avoid putting too much onto one slide (avoid clutter)

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  - dark text on light background (easy to read)
  - light text on dark background (not so easy to read, printing uses much ink)

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Text Color

- Check readability
- Check readability
- Check readability
- Check readability
- Red and green are hard to distinguish for a large fraction of the population

- Check readability, maybe ask others!

Text Size

- Make sure that everyone can read the text (32Pt)
- Make sure that everyone can read the text (28Pt)
- Make sure that everyone can read the text (24Pt)
- Make sure that everyone can read the text (20Pt)
- Make sure that everyone can read the text (18 Pt)
- Make sure that everyone can read the text (16 Pt)
- Make sure that everyone can read the text (14 Pt)
- Make sure that everyone can read the text (12 Pt)

- The caption should not be smaller than the text on the slide

Abbreviations

- Abbreviations reduce the length of the text
- However, they also make the text harder to read and to understand

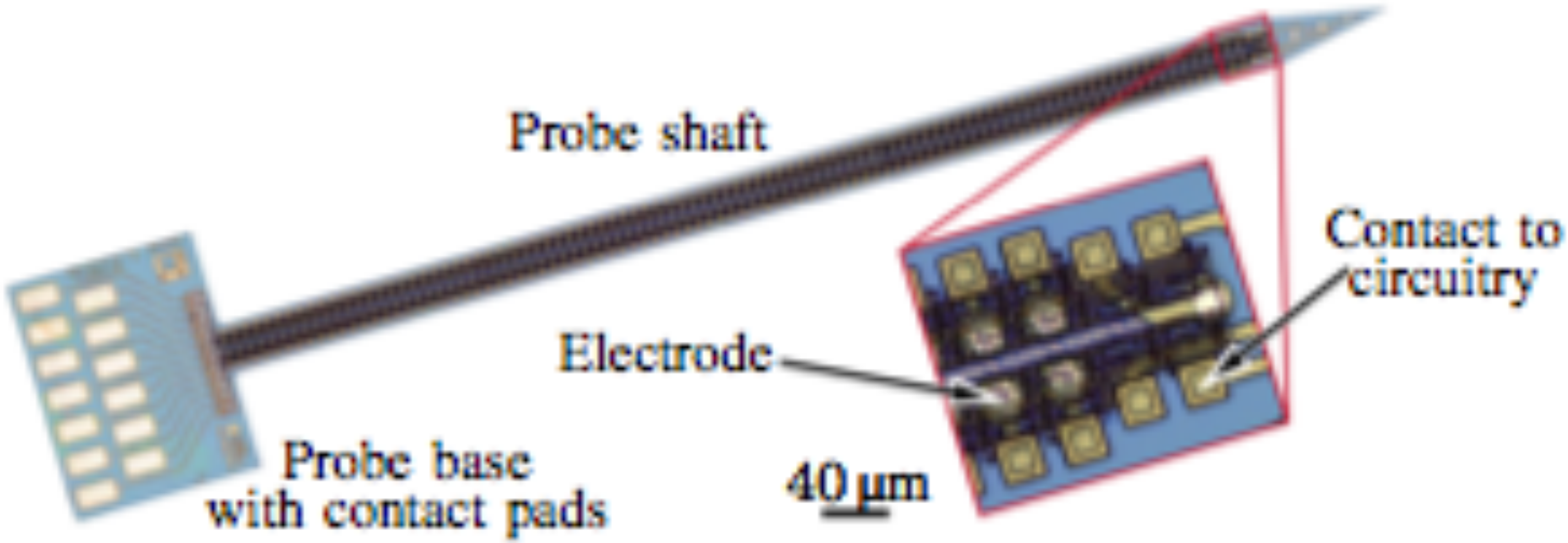
- Don’t use abbreviations to show that you are an insider
- Don’t use abbreviations to show that newcomers are outsiders

- Avoid abbreviations (unless they are very, very common)
- Especially avoid them in titles

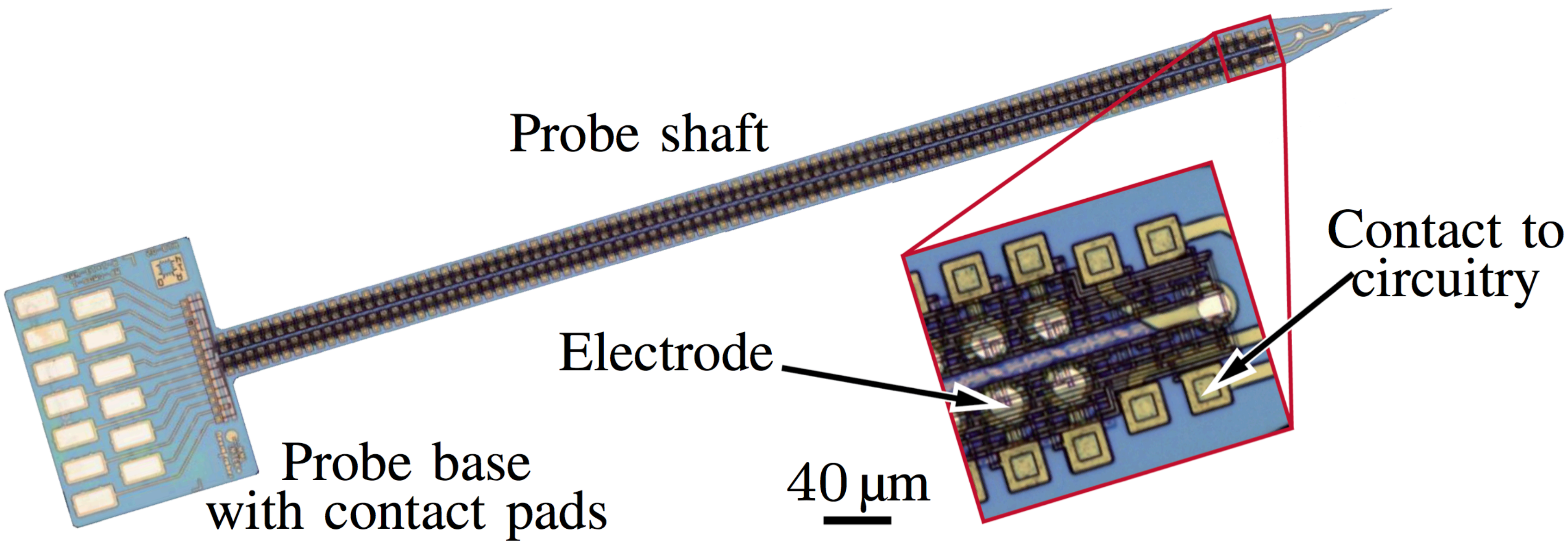
Figures

- Prefer vector graphics over images
- When grabbing an image from the source paper, make sure you do this at the highest resolution
- Enlarge the picture as much as possible before grabbing it
- When you can see the individual pixels, think about redrawing the figure!
- To check, attach your computer to an LCD monitor and check the quality by going close to the screen.

A Low Resolution Figure



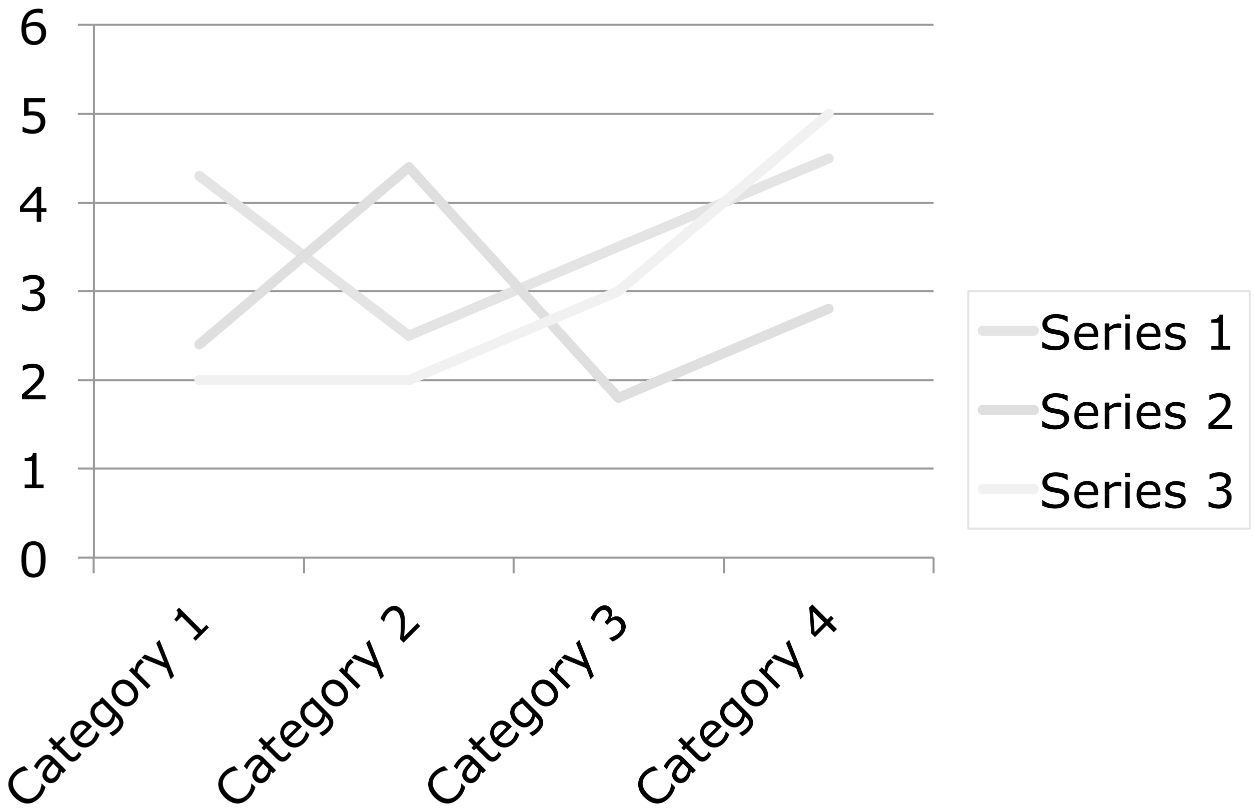
Higher Resolution is better!



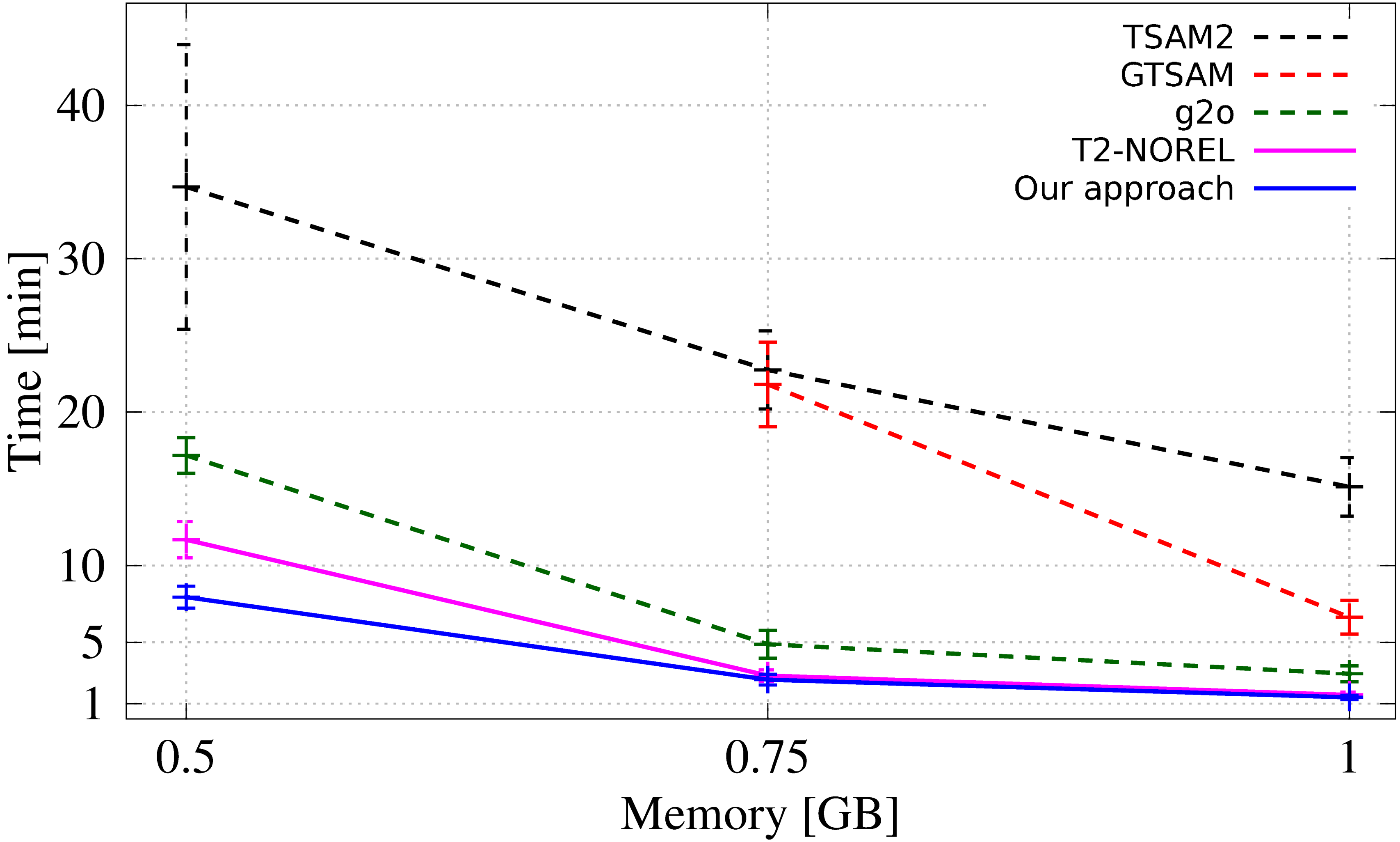
Plots

- Use colors that can easily be distinguished
- Use patterns that can easily be distinguished
- Order the legend according to the functions
- Make them high resolution
- Create your own one if needed

Negative Example Plot



Colors are better!



Animations

- Useful to explain content
- or to illustrate processes

- and not to entertain the audience
- Avoid line after line text-animations
- Often animations are even distracting
- Do not demonstrate that you know every feature of the presentation tool!

Line after Line Animations

Every technical presentation has the following outline:

1. Motivation
2. Outline of the talk
3. State of the art
4. The new method
5. Experimental results
6. Conclusions

The Motivation

- What is the problem?
- Why is it relevant?
- What has been done thus far?
- What is the key idea of the approach presented in the paper?
- In which way do the experiments demonstrate that it provides a better solution to the problem?

- Simply avoid custom animations!

Similar Case in LaTeX Beamer

- What is the problem?
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Similar Case in LaTeX Beamer

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Spell Checking

- Your computer can do spell checking for you: Use it!
- Always set the language of the slide to the language that you are using

Benutzen Sie die Rechtschreibprüfung!

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Typesetting Formulas

- In-text: $\sum_{i=1\,\ldots\,n} i = n*(n+1)/2$
- Equation Editor: $\sum_{i=1}^{n} i = \frac{n*(n+1)}{2}$
- TeX(Point): $$\sum_{i=1}^{n} i \quad = \quad \frac{n*(n+1)}{2}$$

Typesetting Formulas

- In-text: $d = \mathrm{sqrt}((x_1\text{-}x_2)^2+(y_1\text{-}y_2)^2)$
- Equation Editor: $d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$
- TeX(Point): $d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$

Inline Equations

- Easy to type
- Always aligned with text
- Float with text

- Restricted
- Very few symbols available
- Hard to align elements (equation symbol)

Equation Editor

- Relatively easy
- Graphical interface
- High flexibility
- Nicer

- Each equation is an individual object
- They do not float with text
- Nice but not absolutely nice

TeX(Point)

- Full LaTeX flexibility
- Equations can be pasted from LaTeX-sources
- The nicest equations

- Each equation is an individual object
- They do not float with text
- Harder to learn
- Text interface

Slide Numbers

- Help orienting
- Help referencing to specific slides

- They might indicate hidden slides
- Some run in animations, some not, depending on the type of animation

- If it helps you, use them

Slide Numbers

- In seminars held at the university, it is better to use them
- In scientific presentations, everything not relevant to the content might be distracting.

Bullets / Numbering

In for a penny, in for a pound

(in German: wer A sagt muss auch B sagen)

- A
  - A1
- B
  - B1
    - B11

Bullets / Numbering

- In for a penny, in for a pound (in German: wer A sagt muss auch B sagen)

1. A
    1. A1
2. B
    1. B1
        1. B11

Important Aspects to Check

- Set the **language of the slides to the language of the presentation**
- **Spell** your slides (press F7)
- Check whether videos run when Computer is attached to LCD Display
- Check whether videos run on a different computer
- Friendly video codecs are
  - **MP4 with H.264 standard settings** or
  - **MS RLE** encoding for animations

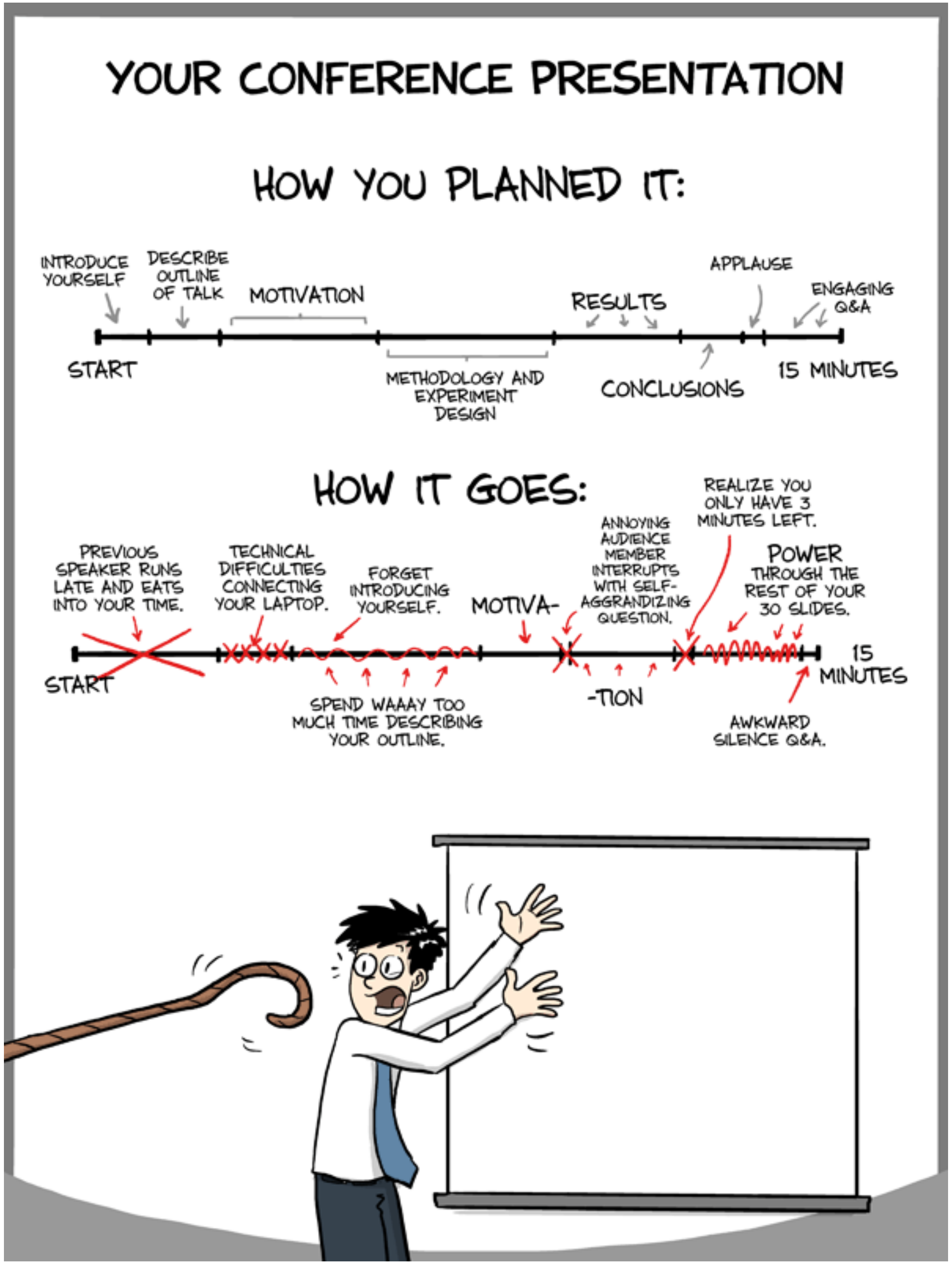
Use Consistent Colors & Shapes

- Think about the colors and shapes that you want and
- stick with them.

Your Presentation

- Plan it
- Practice it
- Time it
- Think about how to deal with interrupting questions
- Practice transitions between slides

- Keep in mind: This is your show. Optimize it!

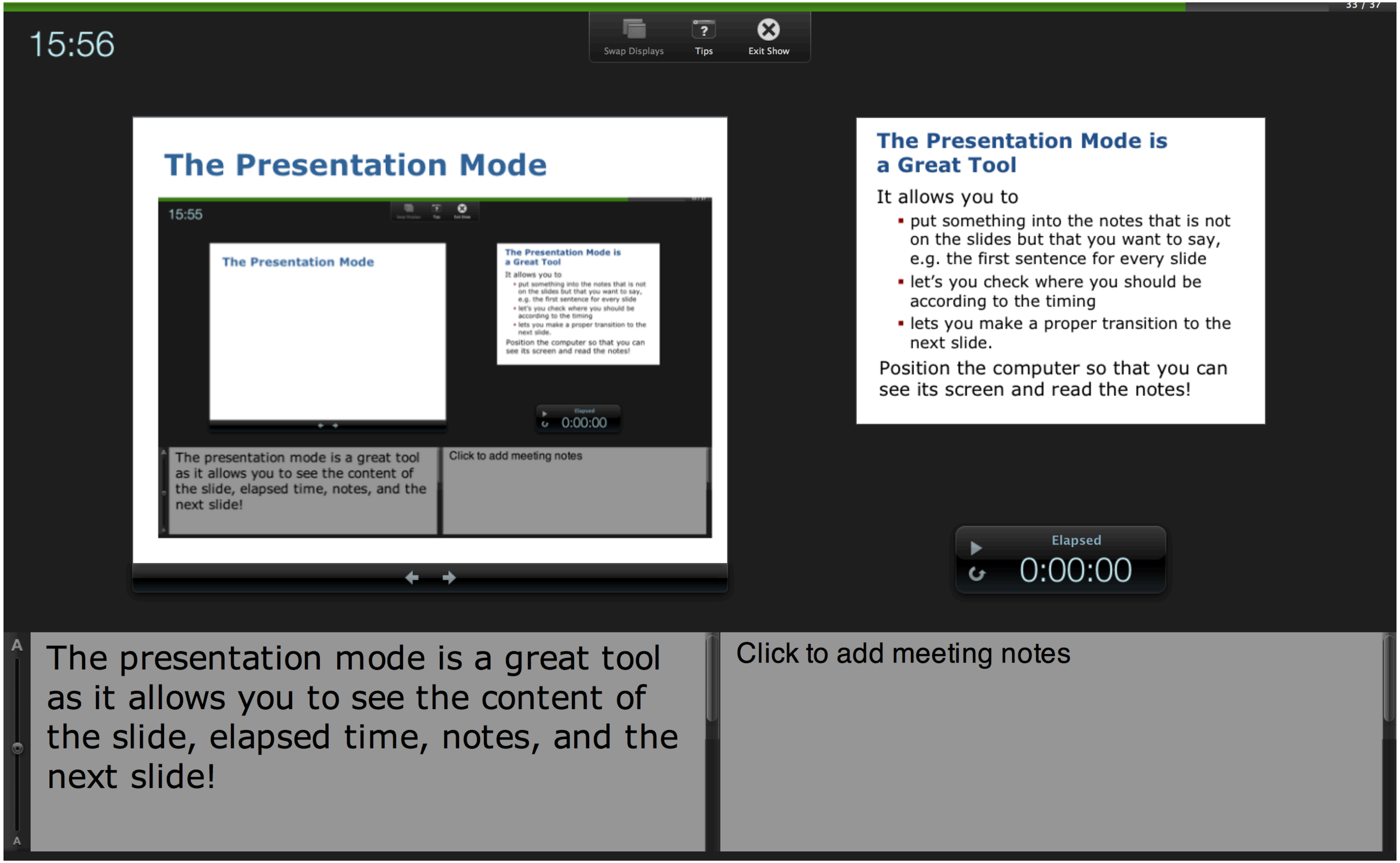


YOUR CONFERENCE PRESENTATION
HOW YOU PLANNED IT:
INTRODUCE YOURSELF
DESCRIBE OUTLINE OF TALK
MOTIVATION
RESULTS
APPLAUSE
ENGAGING Q&A
START
METHODOLOGY AND EXPERIMENT DESIGN
CONCLUSIONS
15 MINUTES
HOW IT GOES:
PREVIOUS SPEAKER RUNS LATE AND EATS INTO YOUR TIME.
TECHNICAL DIFFICULTIES CONNECTING YOUR LAPTOP.
FORGET INTRODUCING YOURSELF.
MOTIVA-
ANNOYING AUDIENCE MEMBER INTERRUPTS WITH SELF-AGGRANDIZING QUESTION.
REALIZE YOU ONLY HAVE 3 MINUTES LEFT.
POWER THROUGH THE REST OF YOUR 30 SLIDES.
START
SPEND WAAAY TOO MUCH TIME DESCRIBING YOUR OUTLINE.
-TION
15 MINUTES
AWKWARD SILENCE Q&A.

Connecting your Laptop

- Check whether your laptop works before the talk
- Are the colors OK?
- Are the videos visible on both screens?
- Do not boot your computer in front of the audience (use suspend to RAM)
- Better do not close the lid before connecting your laptop
- Check the entire presentation (esp. videos and fonts) when you have to give it with a computer different from yours

The Presentation Mode



The Presentation Mode is a Great Tool

It allows you to

- put something into the notes that is not on the slides but that you want to say, e.g., the first sentence for every slide
- lets you check where you should be according to the timing
- lets you make a proper transition to the next slide.

Position the computer so that you can see its screen and read the notes!

Laser Pointer

- Might help you to point at things
- or to emphasize aspects

- Hold the laser pointer in both hands if the laser point jitters
- Not everything needs to be pointed at

- Do not point at the audience,
- Start and stop the laser properly
- Familiarize yourself with the buttons
- and the other features (timer)

Laser Pointer Gestures

- Underline
- Circle
- Point at

Speaking (1)

- Speak up to make sure that everyone can hear you.
- If there is a microphone, speak into it!
- Do not lower your voice simply because there is a microphone
- If you can hear your voice from the speakers, the audience does as well
- If you cannot hear it, the audience will probably also not be able to hear it (and you)

Speaking (2)

- Avoid dialect and idioms
- Avoid quotations that are not publicly known
- Avoid repetitions (look for alternatives or synonyms if you discover it)
- Avoid hesitation vowels like “ahem”, “uh”, “well”, “yes”, “OK”, …

How to Move?

- Establish contact to the audience
- Do not solely focus the computer screen or the screen
- Avoid siding (try to look at everyone)

You Can Survive 10-20 Minutes without Drinking Water!

- Do you really need to drink water every 10-20 minutes?
- If you really expect that you will need to drink water during your talk, have a glass of water ready
- Avoid drinking directly from a bottle in public, which might be regarded impolite.

You Can Survive 10-20 Minutes without Drinking Water!

How to Dress?

- People are there to hear your material.
- When you dress up you send the message that you care enough about the audience to look nice for them.
- My experience is that it is better to feel overdressed rather than underdressed.
- Ask your advisor!

Questions / Interruptions?

- Think positive!
- Questions are good and show that people are interested
- Try to repeat the question to make clear that you understood it properly
- If you cannot answer a question, be honest about it and do not say random words
- If answering would take too long or would go too far away from the talk, suggest to take the discussion offline
- Do not worry when someone falls asleep

Summary

- A talk is a unique opportunity to present yourself
- Prepare it carefully
- Practice it extensively
- There is no reason to be late with your presentation
- There is no reason not to be prepared

Thank you for your attention!

This slide appears in almost every talk
but actually is superfluous.