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How to Make a Good Presentation

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With every presentation...

you present your work...

and **yourself!**

to **others!!**

Outline

1. **Slides:** Content & Layout
2. **Presentation**
3. **Conclusion**

Slides

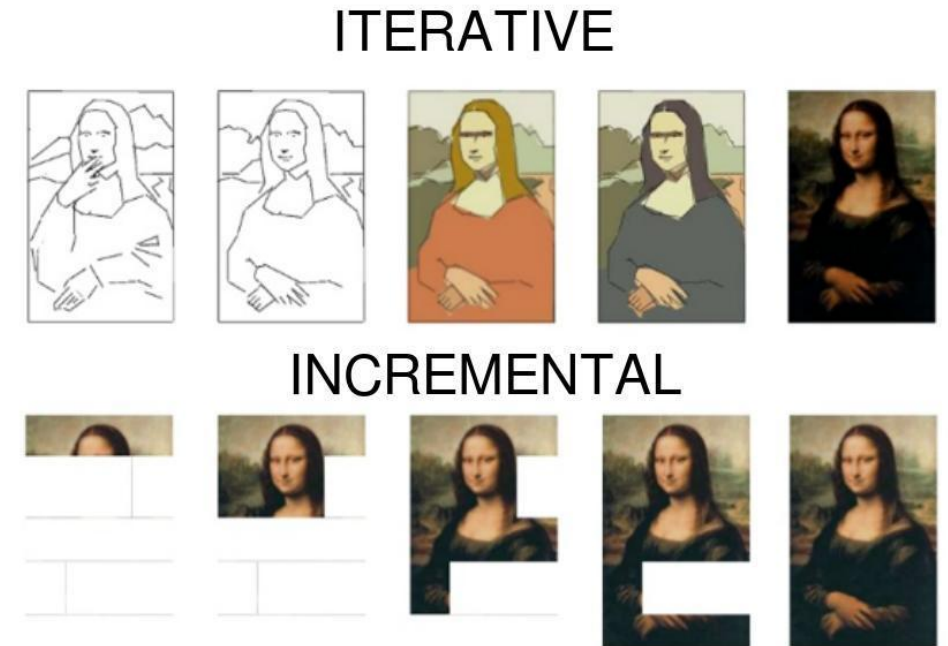
Content & Layout



Slides

Quick Remarks

- Typically done **long** before the presentation
 - It's an iterative process
 - Rule of Thumb: At most 1 slide per minute
- Tool to help you convey **your message**
 - Images, Videos, Graphs, Animations, etc.
- Not meant as a **teleprompter**
 - Do not read from the slides



Slides

Structure of Scientific Presentations

- Introduction and Motivation
 - State-of-the-Art
 - Approach
 - Experiments and Results
 - Conclusion
-
- Brief **Outline** slide
 - Use **Section** break slides
 - Guide your audience

Outline

1. Introduction & Motivation
2. State-of-the-Art
3. Approach
4. Experiments & Results
5. Conclusion

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Part 2. Methodology

Our brilliant idea that nobody
thought before and which
lead to awesome results

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The Sections

The Sections

Introduction and Motivation

Describe:

- The **problem**
- Why is it **relevant**?
- Open **question**
- **How** your approach tackles this question?



[Source](#)

Why should people care about your work?

The Sections

State-of-the-Art

- Mention **relevant** past approaches
- How does your work go **beyond the SotA**?
- Balance between praise and criticism:
 - Mention what other approaches do and what they solve (be friendly, make the authors happy!)
 - Point out their drawbacks without diminishing their worth
 - Specify in which way your approach is better (do not downplay the work of others!)

The Sections

Approach

- Intention:
 - **Not to show off your skills!**
 - Make your audience understand **how** your approach works
- Provide technical details and **intuition**
- Use **graphics** and **examples** to explain technical details

The Sections

Experiments and Results

- Explain your **experimental setup**
- Should **back up your claims**
- Demonstrate your approach has the **desired features**
- Illustrate that your approach is **better than previous ones**

The Sections

Conclusion

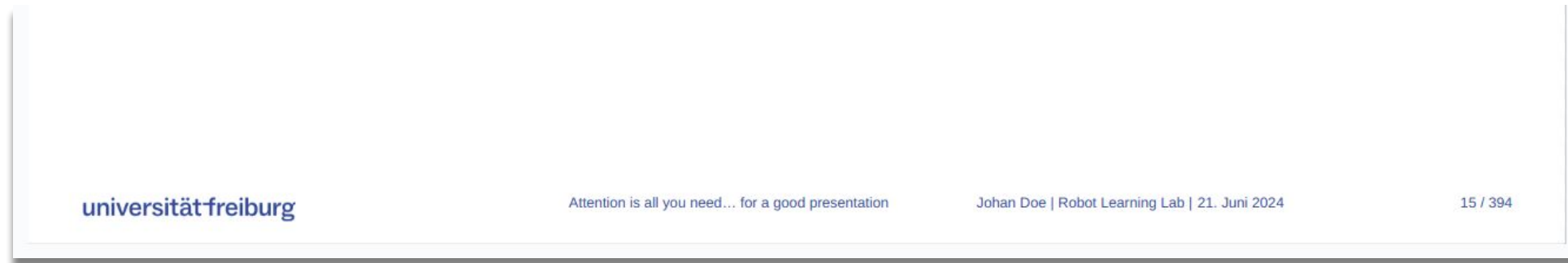
- Describe the **contributions** of this paper
- A good first sentence:
“We presented a novel approach to ...”
- Highlight the **key idea** of the work
- Talk about **limitations**
- How they can be addressed in **future work**?

Slide Design

Slide Design

Quick Remarks

- Use the provided [template](#)
 - Font size might be too small (18pt)
- Use the **footer** area



Slide Design

Bullet Points

- Only use a bullet point when you have **multiple** things to list
- Line distance between bullet points
- Manage headline vs. content space vs. negative space

Slide Design

Text

- Use **Sans-Serif** fonts:
 - Avoid Serif fonts, *Comic Sans*, *Papyrus*, **WordArt**, ...

Left aligned text is easier to read...

... than centered text

- Avoid **clutter** / too much text
- Adjust **font size** based type of presentation (Zoom / in-person)

Slide Design

Text Color

- Dark text on light background (easy to read)
- Light text on dark background (not so easy to read)
- 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!

Slide Design

Abbreviations

- Abbreviations reduce the length of the text
- Use them **sparingly!**
 - Make you appear like an insider,
 - while others feel like outsiders
- Avoid abbreviations (unless they are **common**)
 - DIY, ASAP, UK, USA → Common abbreviations
 - PQ, SQ, RQ → Uncommon abbreviations

Slide Design

Font Size

- Not an eyesight test:
 - Make sure that everyone can read the text (26Pt)
 - Make sure that everyone can read the text (23 Pt)
 - Make sure that everyone can read the text (20 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)
 - I could write whatever I want, nobody will notice (10 Pt)
- The caption should not be smaller than text on the slide

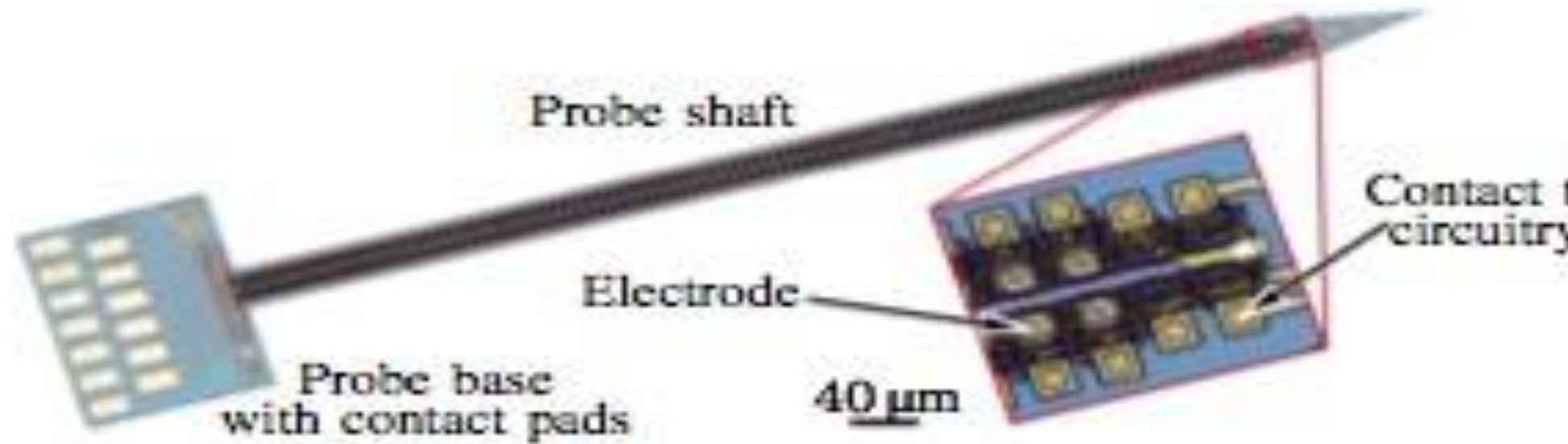
Slide Design

Figures

- Prefer **vector graphics** over raster images
- Grab an image from a paper at the **highest resolution**
 - Find original > Extract from PDF > Screen Capture (zoom in!)
- If the image is pixelated, redraw the figure!
- To check, connect your computer to an LCD monitor and check the quality by going close to the screen

Slide Design

Figures

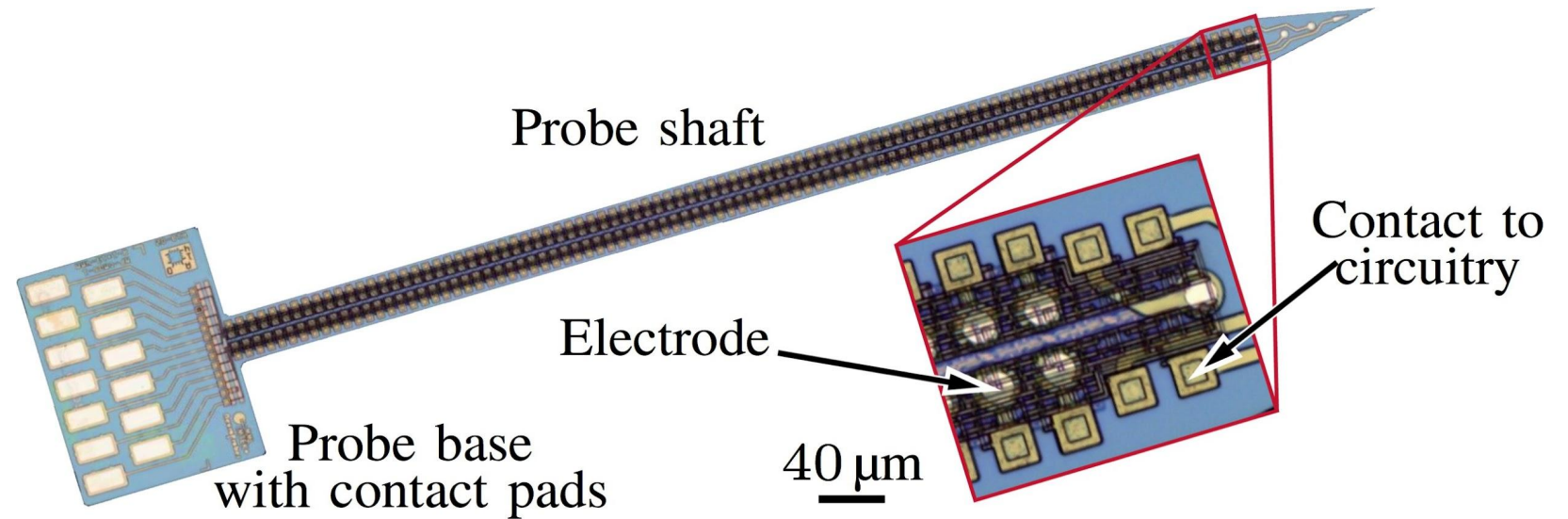


- A couple of issues with this figure ...

Slide Design

Figures

- Check
 - Resolution
 - Aspect Ratio
 - Crop
 - Alignment
 - ...



Slide Design

Algorithms and Equations

Algorithm 1 Coverage(S)

```
1:  $C \leftarrow S$  // Set the current node to  $S$ 
2:  $\mathcal{P}_{aux} \leftarrow C$ 
3:  $\mathcal{P} \leftarrow \emptyset$ 
4: while 1
5:    $\forall n \in \mathcal{P}_{aux}, m \in \mathcal{N}, \|c_n - c_m\| < M_R \cdot e_{cell}$ 
     visited( $m$ ) = 1
6:    $\forall n \in \mathcal{P}_{aux}, m \in \mathcal{N}, \|c_n - c_m\| < 2M_R \cdot e_{cell}$ 
     overlapped( $m$ ) = 1
7:    $\mathcal{N}_C \leftarrow \{n \in \mathcal{N} \mid \|c_n - c_C\|_\infty = (2M_R + 1) \cdot e_{cell}$ 
     and overlapped( $n$ ) = 0 and  $g(n) < \infty\}$ 
8:   if  $\mathcal{N}_C \neq \emptyset$ 
9:     find  $M \in \mathcal{N}_C$  with minimal  $g$ 
10:  else
11:    D*( $C$ ) and stop at visited( $M$ ) = 0
      or  $\|c_M - c_o\|_\infty = e_{cell}, o \in \mathcal{O}$  and  $\exists n,$ 
      visited( $n$ ) = 0,  $\|c_M - c_n\| < M_R \cdot e_{cell}$ 
12:    if no such node  $M$  exists
13:      return  $\mathcal{P}$ 
14:    end
15:  end
16:   $\mathcal{P}_{aux} \leftarrow \mathcal{P}_{aux}(C, M)$ 
17:   $C \leftarrow M$  // Set the new current node
18:   $\mathcal{P} \leftarrow \mathcal{P} \cup \mathcal{P}_{aux}$ 
19: end
```

[Dakulovic et al., IFAC 2011]

Slide Design

Algorithms and Equations

- Algorithms are **boring** / hard to present
- Same goes to equations
 - Nobody remembers symbols introduced in previous slides
- Keep them in the **appendix** in case someone asks for details

Slide Design

Algorithms and Equations

$$G_t \sim \text{DP}_t(\alpha_t, \text{BP}_p(c_p, \alpha_p, \text{Dir} \times \mathcal{NW})),$$

$$G_c^{(s)} \sim \text{BP}_c(1, |A_s| \alpha_c, G_t \times U(A_s \times [-\pi, \pi])) \quad (2)$$

$$\{G_{t_j}, T_j\}_j \sim \text{BeP}(G_c^{(s)}) \quad (3)$$

$$\{\mu_k, \Sigma_k, \gamma_k\}_k \sim \text{BeP}(G_{t_j}) \quad \text{for each } j \quad (4)$$

$$\{\mathbf{x}, \omega\} \sim p(\mathbf{z} \mid \mu_k, \Sigma_k, \gamma_k, T_j) \quad \text{for each } k \quad (5)$$

$$G_e^{(s)} \sim \text{BP}_e(1, \alpha_e, M \times U(A_s)) \quad (6)$$

$$\{\mathbf{x}_i, \omega_i\}_i \sim \text{BeP}(G_e^{(s)}) \quad (7)$$

$$p(\mathbf{C}, \mathbf{a}, \mathbf{z}) = \left(\prod_{s=1}^S p(n_{s,\epsilon}) p(n_{s,m}) \right) p(\mathbf{t}) \left(\prod_{t=1}^{n_t} p(\mathbf{d}_{[t]} \mid \mathbf{t}) \right) \\ p(\mathbf{T}) \left(\prod_{t=1}^{n_t} \prod_{k=1}^{K_t} p(\mathbf{z}_{[\mathbf{d}_{[t,k]}]} \mid \mathbf{T}_{[t]}, \mathbf{d}_{[t,k]}, \mathbf{t}) \right). \quad (8)$$

$$p(n_{s,\epsilon}) = p(\mathbf{z}_{[\mathbf{a}_{[s]}]}, \mathbf{a}_{[s]}) = n_{s,\epsilon}! \text{Poi}(n_{s,\epsilon} \mid \alpha_e) (n_\omega \mid A_s)^{-n_{s,\epsilon}}. \quad (9)$$

$$p(t_j, \mathbf{d}_j \mid \mathbf{t}_{[-j]}, \mathbf{d}_{[-j]}) = p(\mathbf{d}_j \mid \mathbf{d}_{[-j,t_j]}, \mathbf{t}) p(t_j \mid \mathbf{t}_{[-j]}). \quad (10)$$

Here, $p(t_j \mid \mathbf{t}_{[-j]})$ is the CRP predictive distribution

$$p(t_j = i \mid \mathbf{t}_{[-j]}) = \begin{cases} \frac{n_i}{\alpha_c + \sum_{i'} n_{i'}} & t_j \text{ is an existing type} \\ \frac{\alpha_c}{\alpha_c + \sum_{i'} n_{i'}} & t_j \text{ is a new type} \end{cases}, \quad (11)$$

$$p(d_{j,k} \neq 0 \mid \mathbf{d}_{[-j,t_j]}, \mathbf{t}) = \frac{n_k}{n_{t_j} + c_p}, \quad (12)$$

$$p(\mathbf{d}_{[j,K^+]} \mid \mathbf{d}_{[-j,t_j]}, \mathbf{t}) = n_{K^+}! \text{Poi} \left(n_{K^+} \left| \frac{c_p \alpha_p}{n_{t_j} + c_p} \right. \right), \quad (13)$$

$$p(\tilde{\mathbf{x}}_{[d_{j,k}]} \mid \tilde{\mathbf{x}}_{[\mathbf{d}_{[-j,t_j,k]}]}) = t_\nu(\tilde{\mathbf{x}}_{[d_{j,k}]} \mid \mu, \Sigma) \quad (14)$$

$$p(\omega_{[d_{j,k}]} \mid \omega_{[\mathbf{d}_{[-j,t_j,k]}]}) = \frac{n_\omega + \alpha_\omega}{\sum_{\omega'} (n_{\omega'} + \alpha_{\omega'})}, \quad (15)$$

$$R_d = \frac{1}{p(\mathbf{z}_{[\mathbf{d}_j]} \mid \mathbf{z}_{[\mathbf{d}_{[-j,t_j]}]}, \mathbf{T}_{[t_j]}, \mathbf{d}_{[t_j]}, \mathbf{t}) p(t_j, \mathbf{d}_j \mid \mathbf{t}_{[-j]}, \mathbf{d}_{[-j]})} \\ \frac{1}{p(T_j)} \frac{p(n_m - 1)}{p(n_m)} \frac{p(n_\epsilon + n_j)}{p(n_\epsilon)} \frac{q_b(C_j)}{q_d(C_j)}. \quad (16)$$

$$R_s = \frac{p(\mathbf{z}_{[\mathbf{d}_j^*]} \mid \mathbf{z}_{[\mathbf{d}_{[-j,t_j^*]}]}, T_j^*, \mathbf{T}_{[-j,t_j^*]}, \mathbf{d}_j^*, \mathbf{d}_{[-j,t_j^*]}, t_j^*, \mathbf{t}_{[-j]})}{p(\mathbf{z}_{[\mathbf{d}_j]} \mid \mathbf{z}_{[\mathbf{d}_{[-j,t_j]}]}, T_j, \mathbf{T}_{[-j,t_j]}, \mathbf{d}_j, \mathbf{d}_{[-j,t_j]}, t_j, \mathbf{t}_{[-j]})} \\ \frac{p(t_j^*, \mathbf{d}_j^* \mid \mathbf{t}_{[-j]}, \mathbf{d}_{[-j]}) p(T_j^*) p(n_\epsilon^*) q_b(C_j)}{p(t_j, \mathbf{d}_j \mid \mathbf{t}_{[-j]}, \mathbf{d}_{[-j]}) p(T_j) p(n_\epsilon) q_b(C_j)}. \quad (17)$$

$$R_T = \frac{p(\mathbf{x}_{[\mathbf{d}_j]} \mid \mathbf{x}_{[\mathbf{d}_{[-j,t_j]}]}, T_j^*, \mathbf{T}_{[-j,t_j]}, \mathbf{d}_{[t_j]}, \mathbf{t}) p(T_j^*)}{p(\mathbf{x}_{[\mathbf{d}_j]} \mid \mathbf{x}_{[\mathbf{d}_{[-j,t_j]}]}, T_j, \mathbf{T}_{[-j,t_j]}, \mathbf{d}_{[t_j]}, \mathbf{t}) p(T_j)}. \quad (18)$$

$$p(d_{j,k} = i) \propto$$

$$\begin{cases} p(d_{j,k} = 0 \mid \mathbf{d}_{[-j,t_j,k]}, \mathbf{t}) p(n_\epsilon) & i = 0 \\ p(\mathbf{z}_i \mid \mathbf{z}_{[\mathbf{d}_{[-j,t_j,k]}]}, \mathbf{T}_{[t_j]}, d_{j,k}, \mathbf{d}_{[-j,t_j,k]}, \mathbf{t}) & i \neq 0 \\ p(d_{j,k} \neq 0 \mid \mathbf{d}_{[-j,t_j,k]}, \mathbf{t}) p(n_\epsilon - 1) \end{cases} \quad (19)$$

$$R_- = \frac{1}{p(\mathbf{z}_i \mid T_j, \mathbf{d}_{[j,K^+]})} \frac{p(\mathbf{d}_{[j,K^+]}^* \mid \mathbf{d}_{[-j,t_j]}^*, \mathbf{t})}{p(\mathbf{d}_{[j,K^+]})} \frac{p(n_\epsilon + 1) q_+}{p(n_\epsilon) q_-} \frac{q_-}{q_+} \\ p_m(\langle \mathbf{z}_i, \mathbf{z}_j \rangle, \langle k_i, k_j \rangle) = \mathcal{N}(d_\Delta \mid 0, \sigma_m^2) M_{i'}(\omega_i) M_{j'}(\omega_j). \quad (20)$$

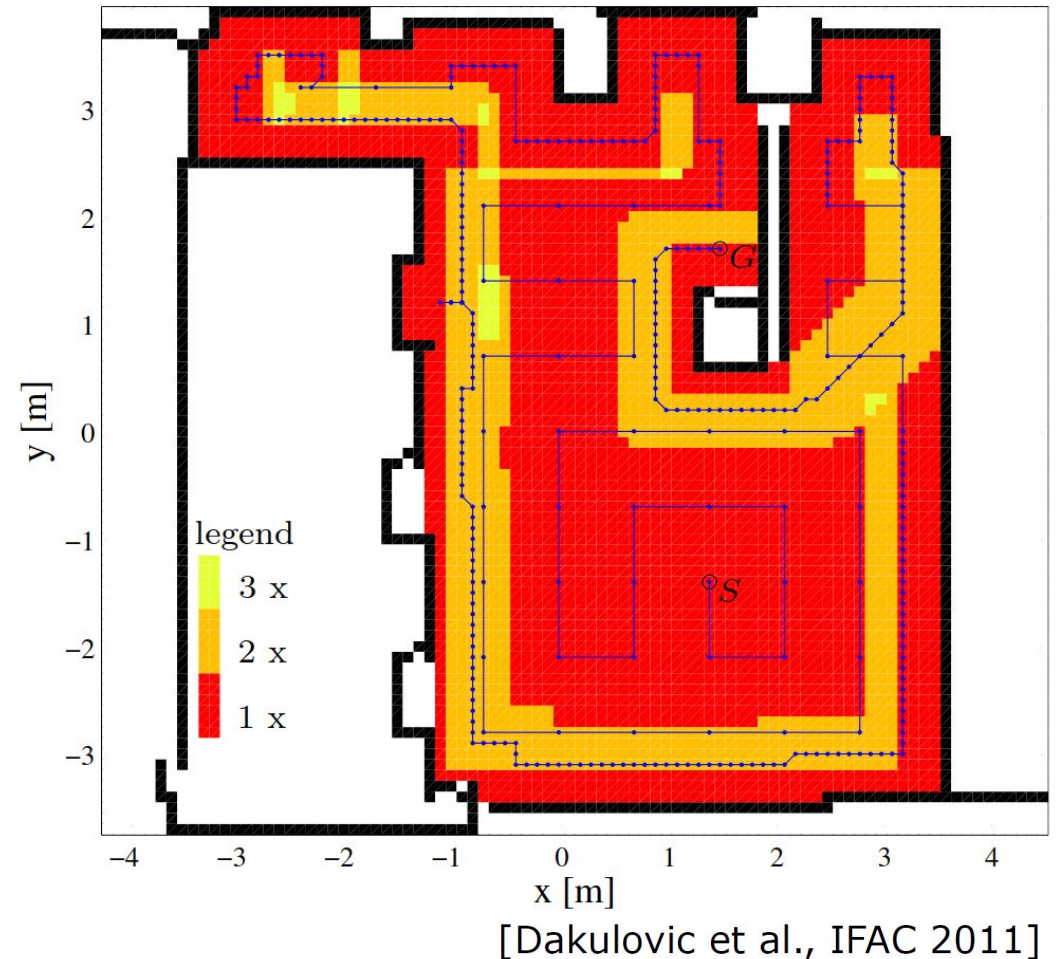
(21)

Slide Design

Algorithms and Equations

Instead:

- Introduce the **idea**
- Use **diagrams** or **animations**
- Design **toy examples** to explain:
 - the inner workings
 - important features of the algorithm
- What should audience take away?
 - **Intuition** behind your algorithm
 - General idea of how it works



Slide Design

Tables

My not so awesome results

Baseline	Acc	mAP	AP ₅₀	AP ₇₅	AP ₉₀	AP _s	AP _m	AP _L	MSE
MLP	65.17931499	51.10769197	48.96746961	54.61312357	0.947493075	87.147549	73.80109773	65.17931499	1.537611e1
ResNet	63.5059482	74.204388	58.83328263	43.3834097	0.5307199053	69.69859185	59.92916455	63.50959482	9.999999
RNN	94.09628891	54.46471774	<u>94.473017</u>	98.18218359	0.8399473363	63.07418726	64.85948246	94.096291	8.645
Transformer	86.43944795	55.96271	79.16797267	89.20976538	0.6289675	4.570553e1	45.32042211	86.4344795	5.277434
GCNN	46.42088664	68.24851811	84.03977	65.50471894	81.19881366	73.95157154	54.41238821	46.4208664	<u>4.785</u>
Ours	89.44789127	<u>80.4517</u>	96.288	<u>92.04034965</u>	<u>81.55</u>	92.28013688	97.2400282	<u>99.37020661</u>	0.77954122
DinoV2	99.37020661	62.41543812	77.05379813	0.608938	91.44263909	41.51532745	91.77551728	94.37661	6.774
Diffusion	53.57308955	57.0322709	80.13649621	78.56749	73.97519969	47.06480578	45.6406477	53.57308955	7.12345678
Mamba	73.87519057	52.16184837	61.69384238	45.72795333	68.66335717	74.31961469	83.4%	73.875	6.5100988

Slide Design

Tables

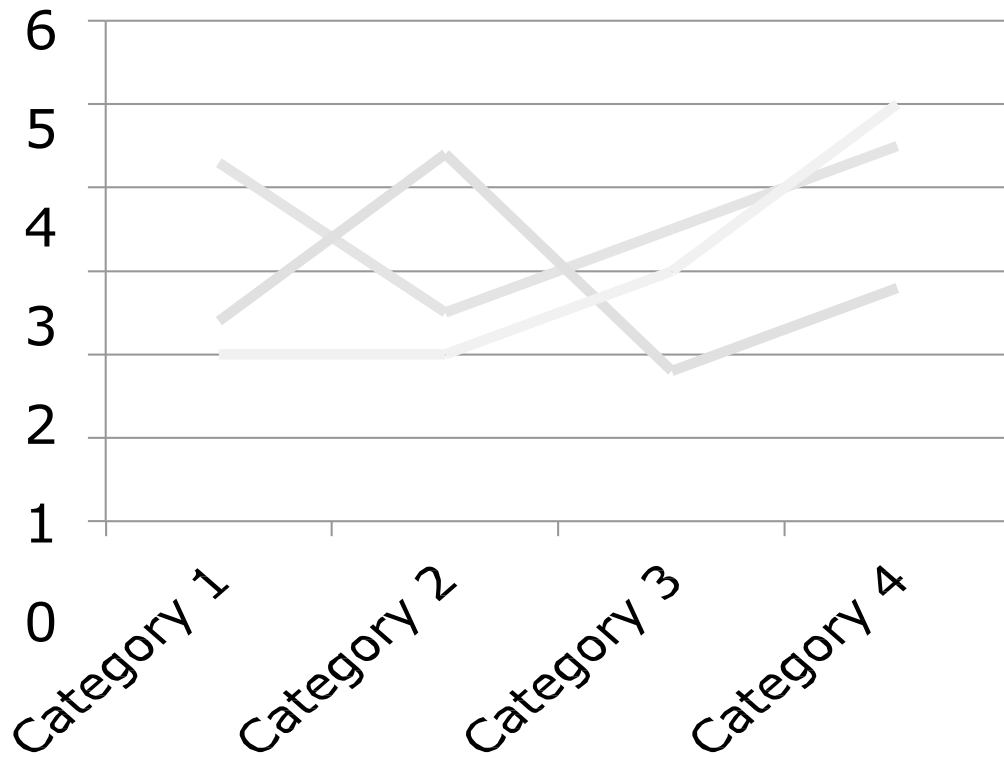
- Horizontal lines = good
 - Vertical lines = bad
- Units and direction of best
- Citations
- Consistent number formatting
- Highlight best (and second best)
- Caption
- Try to avoid, use **plots** instead

My awesome results

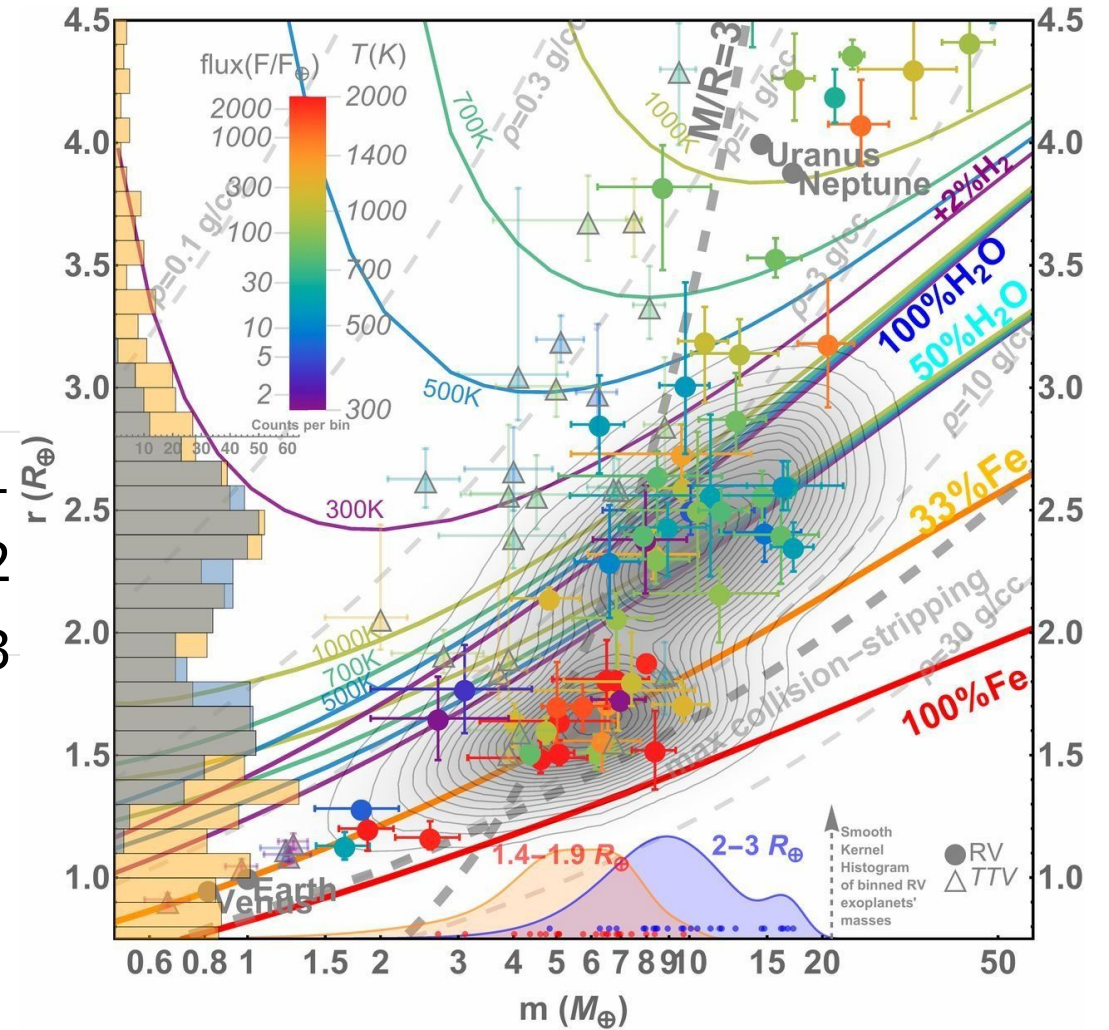
Baseline		Acc [%] ↑	AP ₅₀ [%] ↑	MSE [cm] ↓
MLP	[1]	78.9	68.3	15.4
ResNet	[2]	85.3	71.4	9.9
RNN	[3]	81.6	74.4	8.7
Transformer	[4]	88.7	78.6	<u>5.3</u>
Mamba	[5]	91.3	<u>79.2</u>	6.5
Ours		<u>89.4</u>	81.5	0.8

Slide Design

Plots



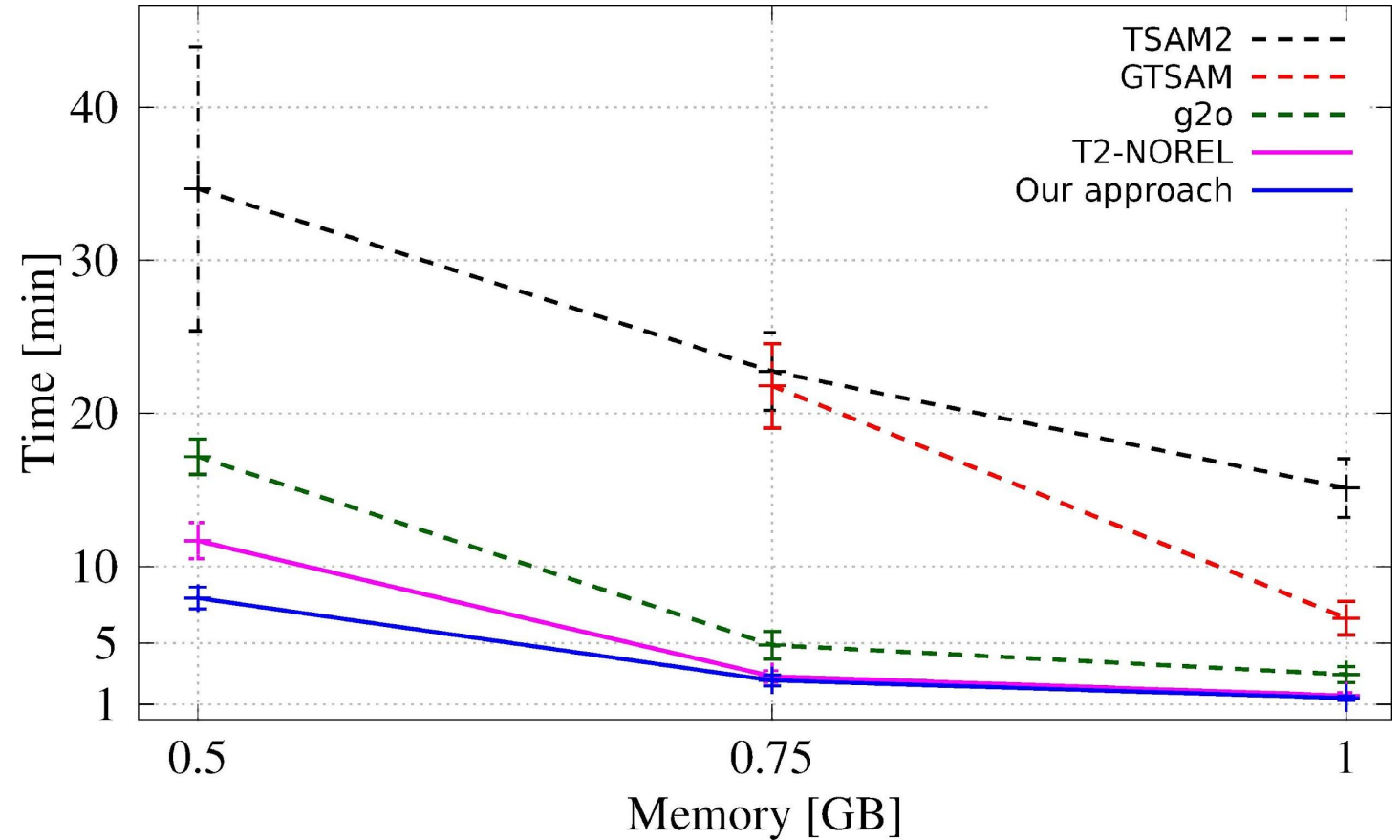
— Series 1
 — Series 2
 — Series 3



Slide Design

Plots

- Use easily distinguishable **colors** and **patterns**
- Order the legend according to the functions
- Axes labels, units, ticks
- High resolution
- Create your own if needed



Slide Design

Animations

- Animations are useful to **explain content**, illustrate **processes**, guide the **focus** of your audience, ...
- Not meant to entertain
- Are easily overdone
- Can be very distracting
- Only with **purpose**
- No need to show off your mad PowerPoint skills



Slide Design

Spell Checking

- Do'nt get cauhgt whit a most envarazing **typo**
- **Check** you're speling wile writeing
- **Prufe reed** ober and over
- Than aks some one else too dobel chek
- Your PC has a spell checker: Use it!
- There are other tools such as **Grammarly**
- Don't forget to set the correct **language**

Benutzen Sie die Rechtschreibprüfung!

Slide Design

Consistency

Throughout the entire presentation:

- Use a fixed, consistent color **palette**
- Consistent shapes
- Same mathematical symbols and variable names
- Same colors / styles for plots:
 - If velocity is green in one plot, ensure it is green in other plots too
 - also for baselines

Presentation



Presentation

In-Person

- Check if 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) when you have to give it on a computer different from yours

Presentation

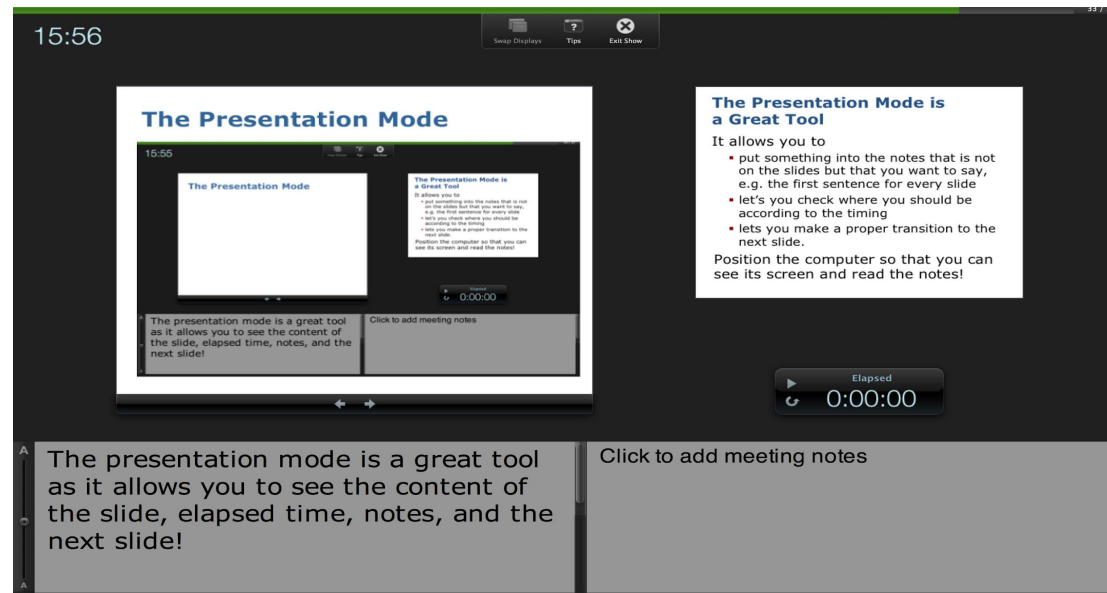
On-Line

- Check your camera and positioning **beforehand**
- Be in the **centre** of the image
- Make sure you're **well lit**, and do not sit against the light
- Be aware of your **background**
- Check whether videos run smoothly on the conferencing software
- Be familiar with the software: How to share the (correct) screen, enter presentation mode etc.

Presentation

Presenter View

- Allows you to view **notes** for each slide
- Lets you check where you should be according to the **timing**
- Lets you make a proper **transition** to the next slide



Presentation

Your Presentation

- Plan it
- Rehearse it (multiple times)
- Time it
- Think about how to deal with interrupting questions
- Practice transitions between slides
- Keep in mind: This is **your** show. Optimise it!

Presentation

Know your audience

- Make sure **everyone** understands. Adjust your vocabulary and technical details depending on the public.
- Avoid **Jargon**, If you can't avoid it, explain it.

Jargon: a specialized vocabulary, technical terminology, or shorthand used by people within a specific profession, trade, or group.
- Remember, your goal is not to impress. Your goal is to **convey your message.**

Presentation

Laser Pointer

- Helps you to **point at things**
- Use the laser pointer instead of the mouse cursor
- Clearly visible and hard to miss
- Laser pointer visible from the presentation mode as well
- Not a Disney Sing-Along-Song
 - Not everything needs to be pointed at

Presentation

Voice

- **Speak up** to make sure that everyone can hear you
- Modulate your voice tone
- Avoid dialect
- Avoid idioms
- Avoid repetitions (look for alternatives or synonyms if you discover it)
- Avoid **filler words** and hesitation vowels like “ahem”, “uh”, “well”, “yes”

Presentation

Questions & Interruptions

- Think positive!
- **Questions** are good and show that people are interested
- **Repeat** the question to ensure that you understood it properly
- If you cannot answer a question, **be honest** about it
- Suggest to take the **discussion offline**, if the answer would take too long or diverges from the talk

Presentation

Timing

- Test the duration of your presentation **beforehand**
- Keep a **timer** running
- If you tend to stumble on phrasing: Slide **notes** can serve as a crutch

Conclusion



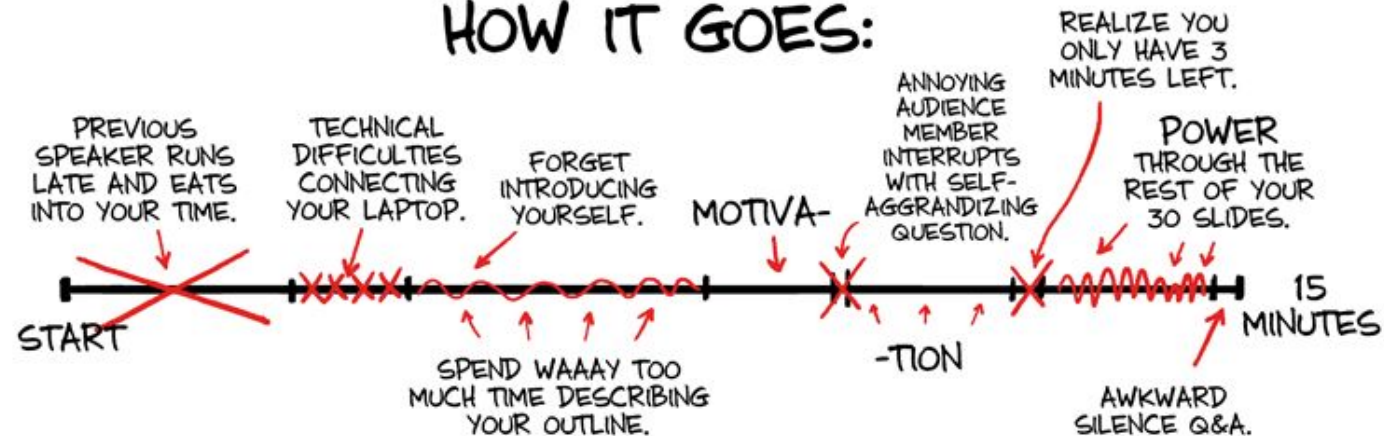
Conclusion

YOUR PRESENTATION

HOW YOU PLANNED IT:



HOW IT GOES:



Conclusion

- 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 !!!

Conclusion

- 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