universität freiburg

How to Make a Good Presentation
Seminar: Robot Learning
Winter Semester 2024/25

Markus Käppeler

January 17th, 2025

robot learning

With every presentation…

you present your work…

and **yourself**!

universität freiburg

Outline

1. **Slides:** Content & Layout

2. **Presentation**

3. **Conclusion**

Slides
Content & Layout

Slides

Quick Remarks

- Typically done **long** before the presentation

  - 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

universität freiburg

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

universität freiburg   Johan Doe | Robot Learning Lab | 11. Mai 2023   5

Part 2.
Methodology
Our brilliant idea that nobody
thought before and which
lead to awesome results

universität freiburg   Johan Doe | Robot Learning Lab | 11. Mai 2023   5

The Sections

The Sections

Introduction and Motivation

Describe:

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

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**

universität freiburg

The Sections

Conclusion

- Describe the **contributions** of this paper

- A good first sentence:

  "We presented a novel approach to …"

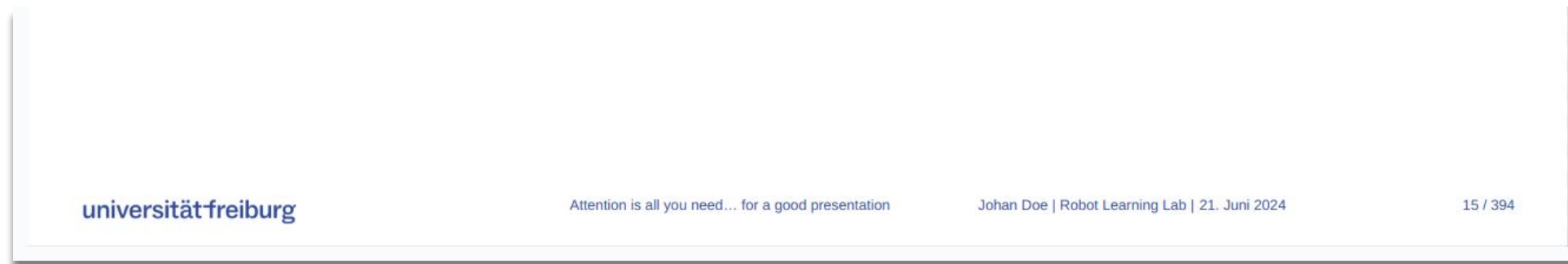- Highlight the **key idea** of the work

- Talk about **limitations**

- How they can be addressed in **future work**?

Slide Design

universität freiburg

Slide Design

Quick Remarks

- Use the provided **template**

  - Font size might be too small (18pt)

- Use the **footer** area

universität freiburg   Attention is all you need… for a good presentation   Johan Doe | Robot Learning Lab | 21. Juni 2024   15 / 394

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 $\rightarrow$ Common abbreviations
  - PQ, SQ, RQ $\rightarrow$ 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
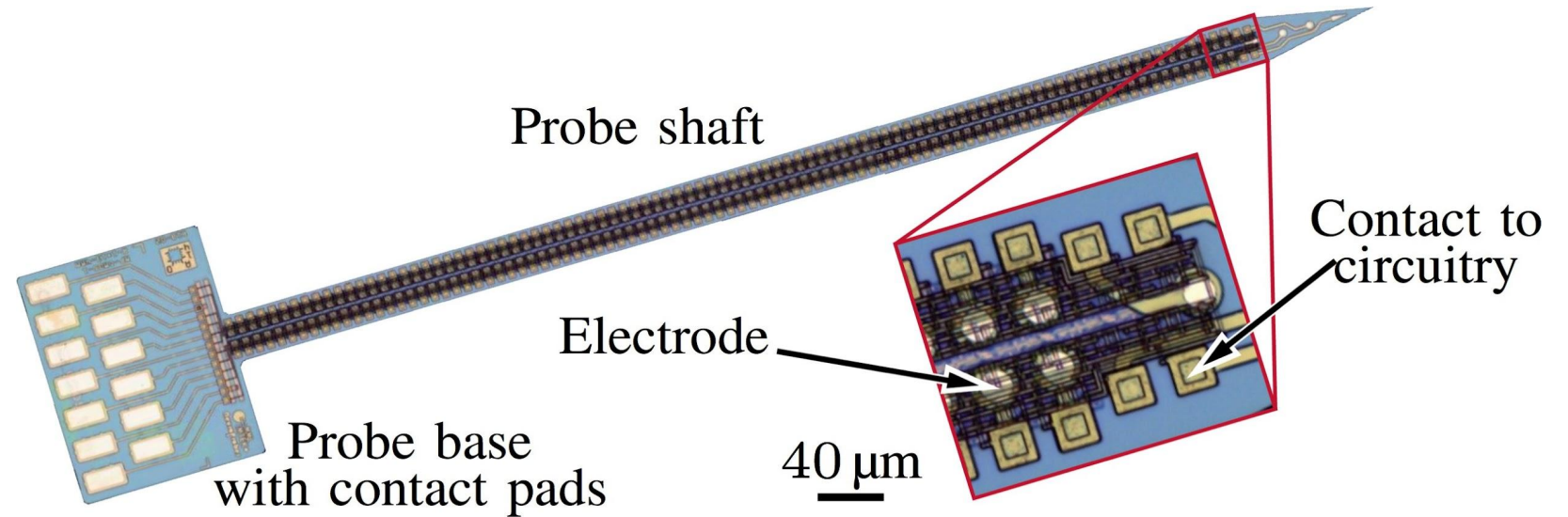
Slide Design
Figures
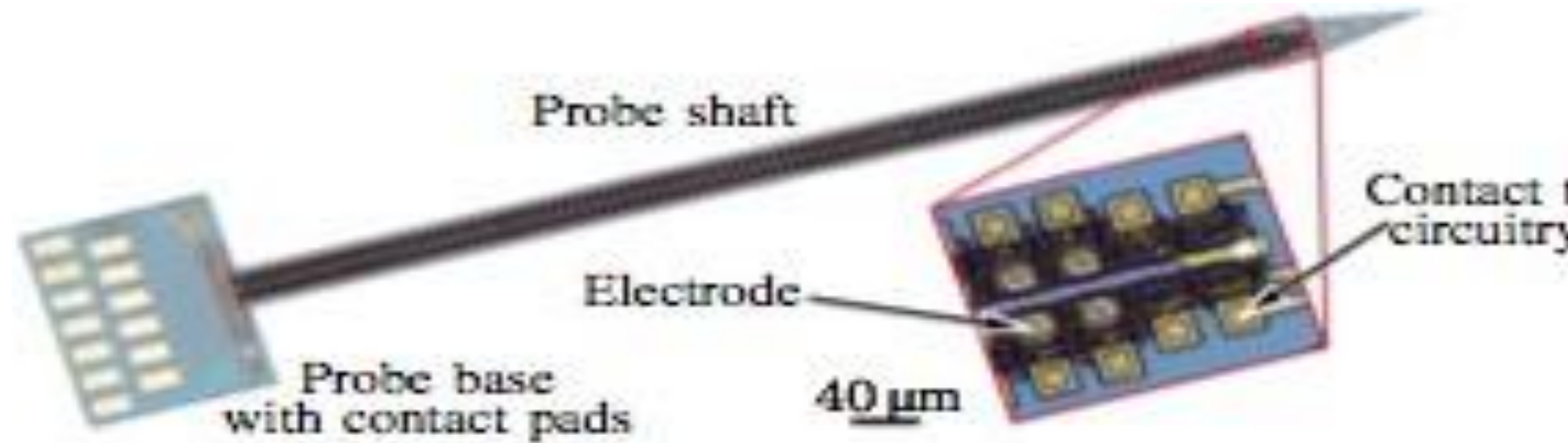
- A couple of issues with this figure …

Slide Design

Figures

- Check

  - Resolution

  - Aspect Ratio

  - Crop

  - …

Probe shaft

Probe base
with contact pads

Electrode

Contact to
circuitry

40 μm

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:    $\forall n \in \mathcal{P}_{aux},\ m \in \mathcal{N},\ \|c_n - c_m\| < M_\mathrm{R} \cdot e_\mathrm{cell}$
          visited$(m) = 1$
6:    $\forall n \in \mathcal{P}_{aux},\ m \in \mathcal{N},\ \|c_n - c_m\| < 2M_\mathrm{R} \cdot e_\mathrm{cell}$
          overlapped$(m) = 1$
7:    $\mathcal{N}_C \leftarrow \{n \in \mathcal{N} \mid \|c_n - c_C\|_\infty = (2M_\mathrm{R} + 1) \cdot e_\mathrm{cell}$
          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 $\|c_M - c_o\|_\infty = e_\mathrm{cell},\ o \in \mathcal{O}$ and $\exists n$,
          visited$(n) = 0, \|c_M - c_n\| < M_\mathrm{R} \cdot e_\mathrm{cell}$
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]

universität freiburg

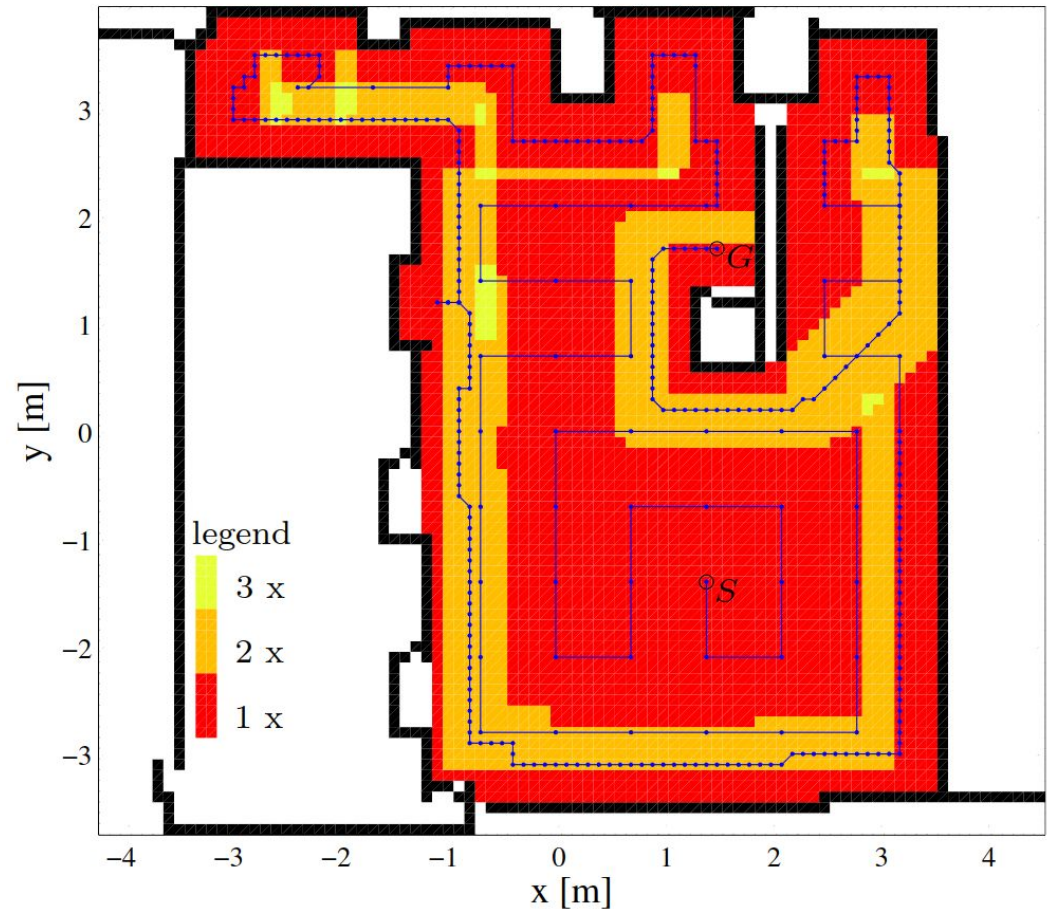# Slide Design

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

universität freiburg

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

[Dakulovic et al., IFAC 2011]

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

universität freiburg

Slide Design

Tables

- Horizontal lines = good
  - Vertical lines = bad
- Units and direction of best
- Citations
- Consistent number formatting
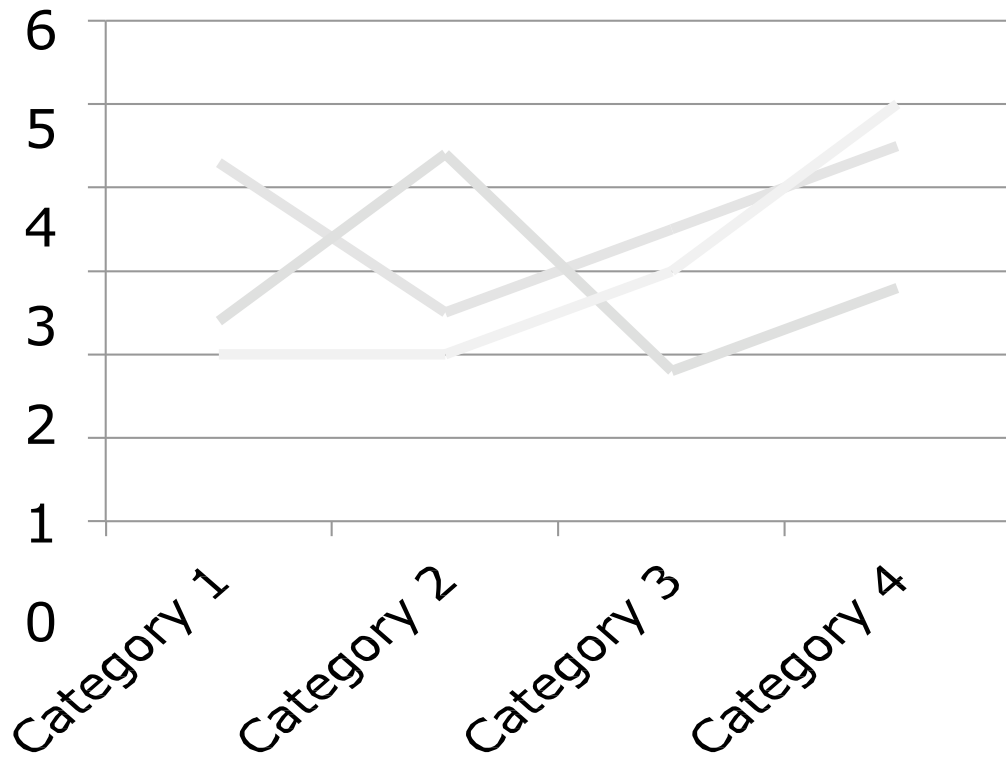- Highlight best (and second best)

- Try to avoid, use **plots** instead
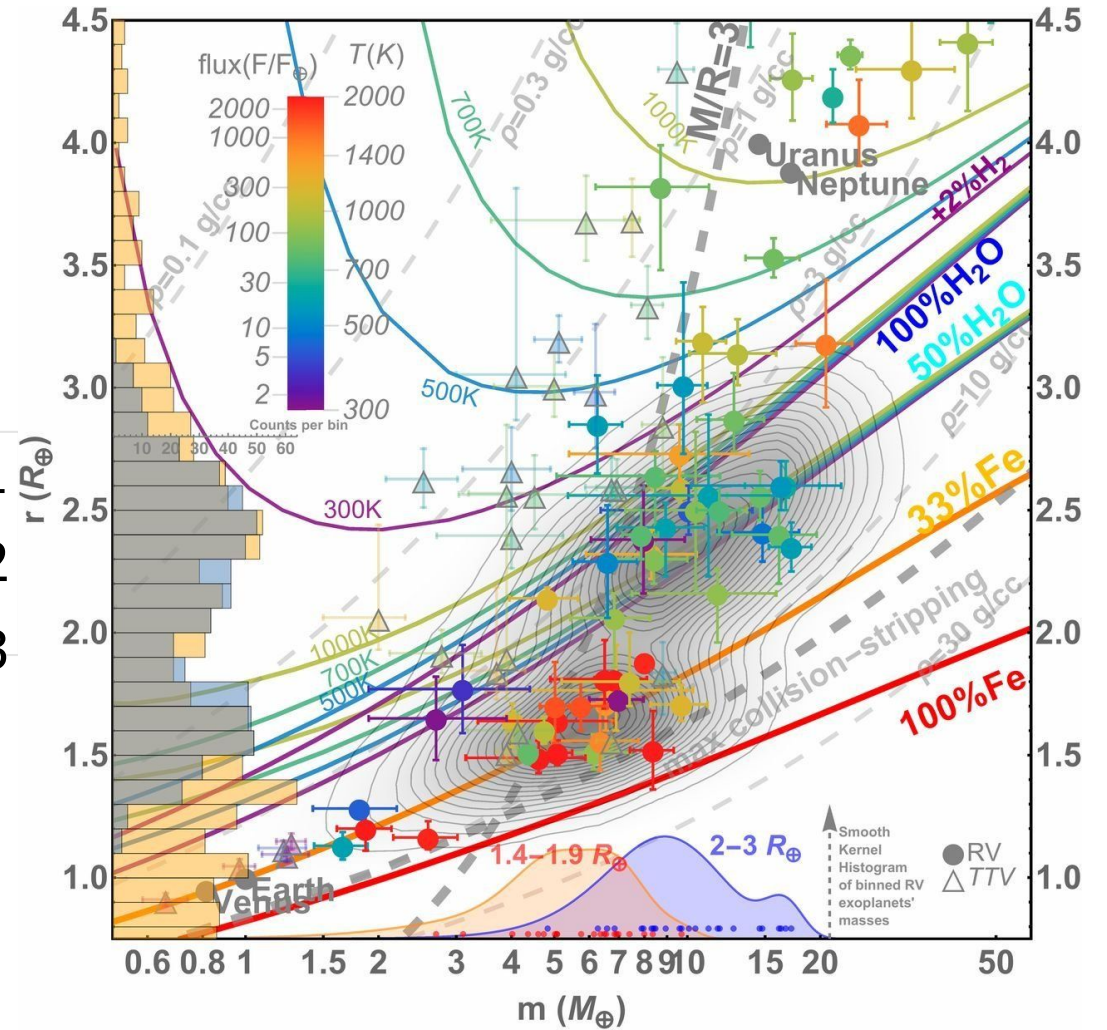
My awesome results

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	5.3
Mamba	[5]	**91.3**	79.2	6.5
Ours		89.4	**81.5**	**0.8**

universität freiburg

Slide Design

Plots

universität freiburg
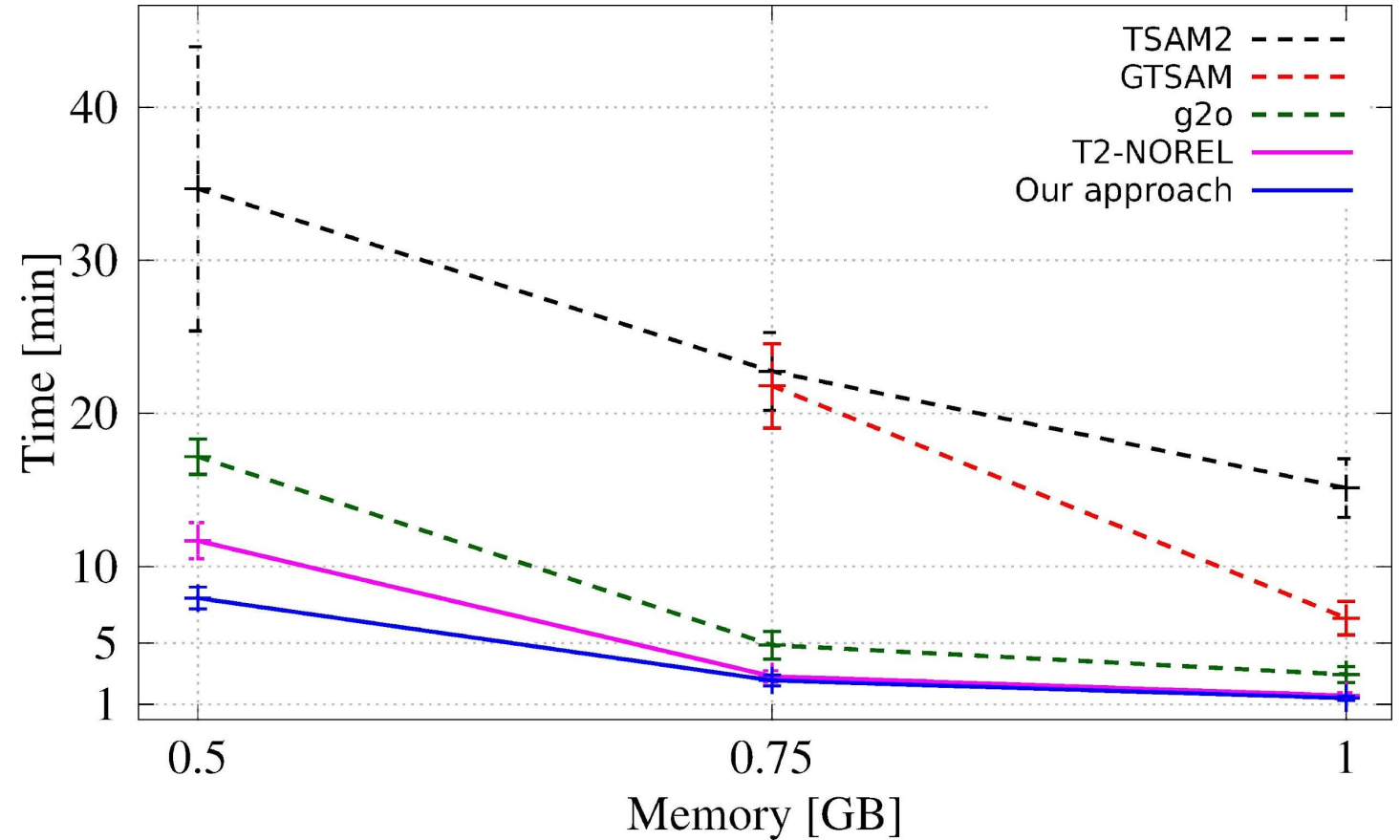
Slide Design

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

universität freiburg

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
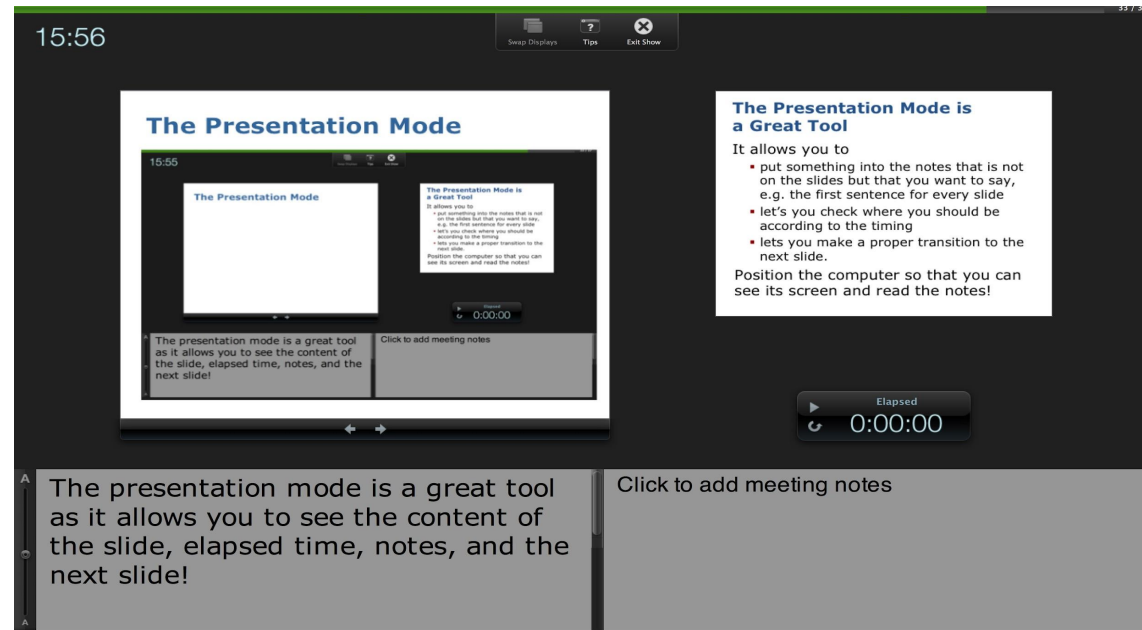
Presentation
On-Line

- 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.

universität freiburg

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

universität freiburg

Presentation

Your Presentation

- Plan it

- Practice 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!

universität freiburg

Presentation
Laser Pointer

- Helps you to **point at things**

- Use the laser pointer instead of the mouse cursor

- Clearly visible and hard to miss

- 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

Markus Käppeler | Robot Learning Lab | 17. Januar 2025   40 / 47

universität freiburg

Presentation
Timing

- Test the duration of your presentation **beforehand**

- Keep a **timer** running

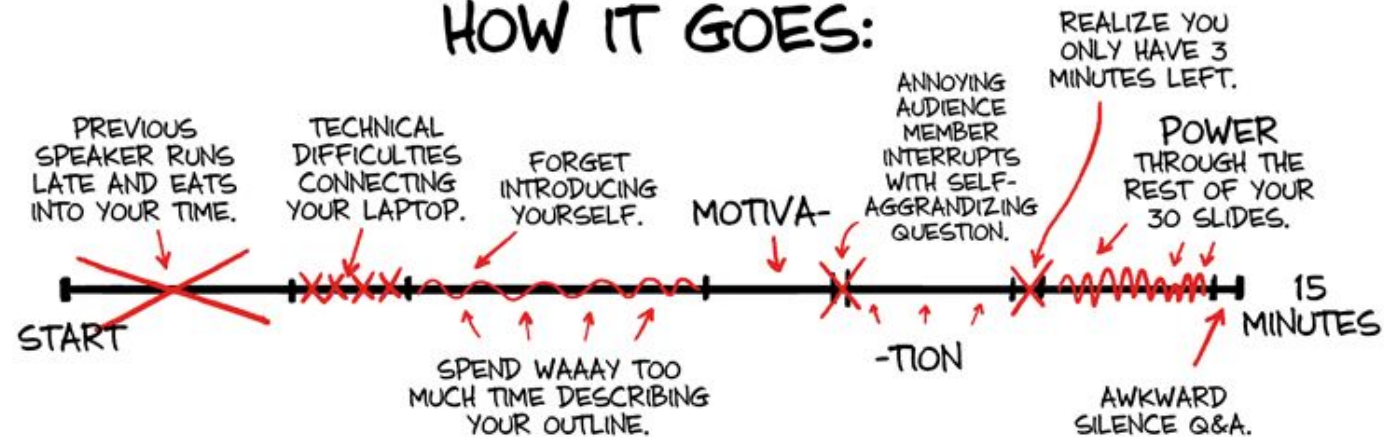- If you tend to stumble on phrasing: Slide **notes** can serve as a crutch

Conclusion

Conclusion

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 !

Universität freiburg

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