



# Lab Course / “Praktikum”: *Project Management and Software Development for Medical Applications*

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## Presentation Tips and Rules WS2023

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Munich, October 2023



# The Presentation...

- The presentation is a support for your talk.
- The presentation has to be clear, in structure and in layout.
- The presentation has to be visually pleasant.





# Project Management and Software Development for Medical Applications

## **The title of your project**

Session Name – Date

Project Supervisor: his/her name

Presented by: your name



Technische Universität München



JOHNS HOPKINS  
WHITING SCHOOL  
of ENGINEERING

# Outline

- Introduction
- Methods and Materials
- Results
- Discussion



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- Introduction
- Methods and Materials
- Results
- Discussion

This should be the structure of any scientific presentation.

There is no need to remind your audience that you are going to do the obvious!



# Bad Ideas of Slide Design

- It is a good idea to write out everything you want to say at some point
  - Even if you do not have time to say it, write it!
- Every slide needs figures
  - Even if you do not explain them
  - Even if they are too small to be understandable
- You absolutely need to put as much information on a slide a possible
  - If there is not a bullet or dash in front of each line, structure is not visible
  - It does not matter to have many points
    - It shows that you think in complex ways
  - Items can also appear one after the next
  - This is particularly important if you do not want people to guess what is happening!





Some Examples...

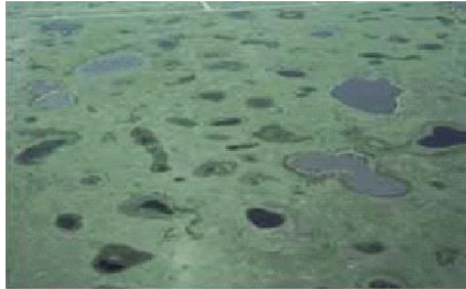




# Ecological Significance of the Prairie Pothole Region

The Prairie Pothole region (PPR) is the northernmost extension of the Great Plains.

Glacial scouring has resulted in a multitude of relatively small ponds and wetland areas, which are controlled by key aspects of the hydrologic cycle.

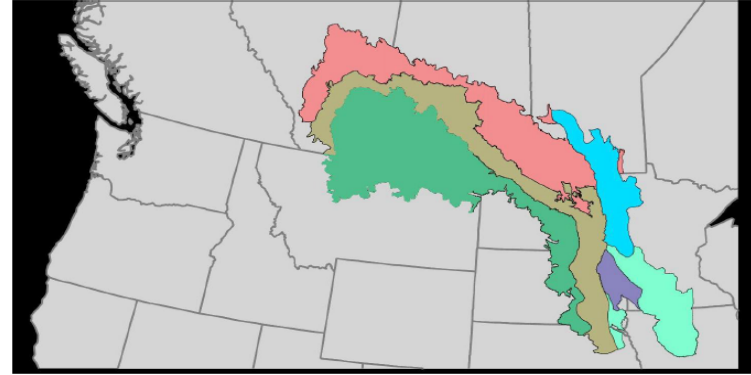


Wetlands act as buffers to hold excess water in flood conditions.

The PPR is recognized as the nesting area for the majority of the ducks that breed in the continental US.

The PPR is also a migration resting point for waterfowl transiting to and from Northern Canada.

Major commercial uses of the PPR include crop agriculture and cattle ranching.



# Use a Clear Design!

Slide titles should have a **message**.

**Restrict** to writing key messages.

There is **no need** to use explicit bullets.

Structure is visible through alignment and font size.

Key messages do not need many levels of indentation.

A slide is **complete** even without a figure.



# Errors of Typography

- Fancy fonts will rejoice everyone (btw. Comic Sans is an awesome font)
- Using background colours makes your life more colourful
- Combining colours confirms your creativity

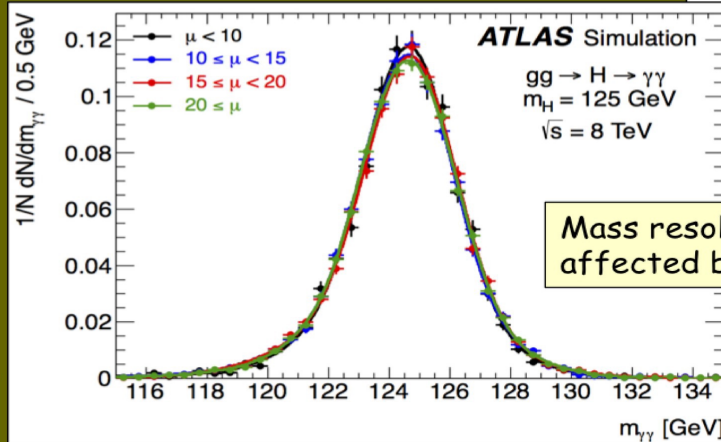
Just in case: We are being sarcastic here!

## Mass resolution

$$m_{\gamma\gamma}^2 = 2 E_1 E_2 (1 - \cos\alpha)$$

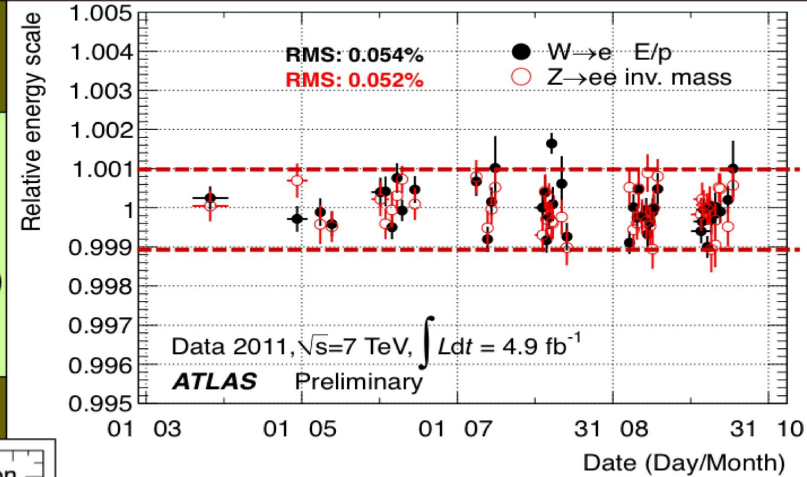
Present understanding of calorimeter E response (from Z, J/ψ → ee, W → ev data and MC):

- E-scale at  $m_Z$  known to ~ 0.3%
- Linearity better than 1% (few-100 GeV)
- "Uniformity" (constant term of resolution): ~ 1% (2.5% for  $1.37 < |\eta| < 1.8$ )



Mass resolution not affected by pile-up

## Stability of EM calorimeter response vs time (and pile-up) during full 2011 run better than 0.1%



Electron scale transported to photons using MC (small systematics from material effects)

Mass resolution of inclusive sample: 1.6 GeV  
 Fraction of events in  $\pm 2\sigma$ : ~90%



# INTRODUCTION

Motor Car, any self-propelled vehicle with more than two wheels and a passenger compartment, capable of being steered by the operator for use on roads. The term is used more specifically to denote any such vehicle designed to carry a maximum of seven people.

The primary components of a car are the power plant, the power transmission, the running gear, and the control system. These constitute the chassis, on which the body is mounted. The power plant includes the engine and its fuel, the carburettor, ignition, lubrication, and cooling systems, and the starter motor.

Image Source:

Sarah Jacobsson Purewal, "Top 10 world's worst PowerPoint presentations"  
[www.pcworld.idg.com.au/slideshow/366369/world-worst-powerpoint-presentations](http://www.pcworld.idg.com.au/slideshow/366369/world-worst-powerpoint-presentations)

# US Wireless Market – Q2 2010 Update

## Executive Summary

The US wireless data market grew 6% Q/Q and 22% Y/Y to exceed \$13.2B in mobile data service revenues in Q2 2010 - on track so far to meet our initial estimate of \$54B for the year.

Having narrowly edged NTT DoCoMo last quarter for the first time, Verizon Wireless continued to maintain its number one ranking for the 1H 2010 in terms of the operator with the most mobile data revenues (though the difference was thinner than the amoeba membrane). The total wireless connections for Verizon were almost 100M with 92.1M being the traditional subscriber base. Rest of the 3 top US operators also maintained leading positions amongst the top 10 global mobile data operators.

Sprint had the first positive netadd quarter in 3 years and has been slowly and steadily turning the ship around. T-Mobile did better on the postpaid netadds but overall additions declined again. The larger question for the market is if 4 large players can stay competitive. Generally, the answer is no. But these are different times and there are a number of permutations and combinations that are possible.

The US subscription penetration crossed 95% at the end of Q2 2010. If we take out the demographics of 5 yrs and younger, the mobile penetration is now past 100%. While the traditional net-adds have been slowing, the "connected device" segment is picking up so much that both AT&T and Verizon added more connected devices than postpaid subs in Q2 2010. Given the slow postpaid growth, operators are fiercely competing in prepaid, enterprise, connected devices, and M2M segments.

Data traffic continued to increase across all networks. By 1H 2010, the average US consumer was consuming approximately 230 MB/mo up 50% in 6 months. US has become ground zero for mobile broadband consumption and data traffic management evolution. While it lags Japan and Korea in 3G penetration by a distance, due to higher penetration of smartphones and datacards, the consumption is much higher than its Asian counterparts. Given that it is also becoming the largest deployment base for HSPA+ and LTE, most of the cutting edge research in areas of data management and experimentation with policy, regulations, strategy, and business models is taking place in the networks of the US operators and keenly watched by players across the global ecosystem.

As we had forecasted, the tiered pricing structure for mobile broadband touched the US shores with AT&T becoming the first major operator to change its pricing in 4 quarters as the US mobile ecosystem adjusts to the new realities and strategies for mobile data consumption.



# Beginner Motorcycles



- My personal favorite: the Suzuki Savage
- Light weight (~380lbs)
- Adequate power (650cc engine)
- Low seat height fits most riders

Source:  
Jacob Hill, "Quite Possibly the World's Worst PowerPoint Presentation Ever "  
[www.apa.org/gradpsych/2012/01/worst-powerpoint-ever.pdf](http://www.apa.org/gradpsych/2012/01/worst-powerpoint-ever.pdf)

# WHAT YOUR GRAPH COLOUR PALLET SAYS ABOUT YOU

ERRANTSCIENCE.COM



I HAVE NO IDEA HOW  
TO CHANGE EXCEL  
GRAPH COLOURS



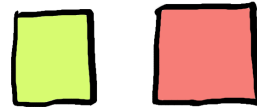
I CRAVE BLANDNESS  
IN ALL THINGS



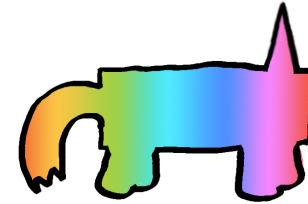
I THINK GRAY  
SCALE IS TOO ARTSY



I WANT PEOPLE TO SEE  
MY GRAPHS FROM SPACE



I HATE COLOUR-  
BLIND PEOPLE



OMG UNICORNS!

Claire Murray. "Life advice (part 1): Graphically coloured",

ErrantScience: Clutter, June 2018,

[clutter.errantscience.com/2018/06/25/life-advice-part-1-graphically-coloured](http://clutter.errantscience.com/2018/06/25/life-advice-part-1-graphically-coloured)








A silhouette of a person standing on a grassy hill, looking out over a vast landscape under a dramatic, golden sunset sky. The person is positioned on the left side of the frame, facing right. The sky is filled with soft, wispy clouds, and the overall color palette is dominated by warm, golden-yellow and orange tones. The text "This is not Instagram" is overlaid on the right side of the image.

This is not Instagram

Image source: Aravind Vijayan, "Silhouette of man", 2018, [unsplash.com/photos/Go6jxhtleYs](https://unsplash.com/photos/Go6jxhtleYs)



Do those cool background photos really add *any* emphasis to your point?

And is it worth the loss of readability?

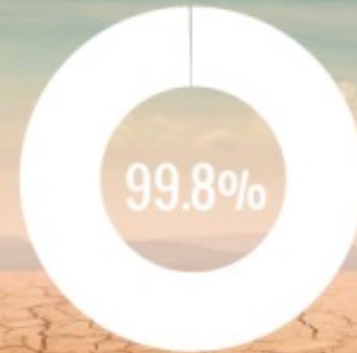
Source:  
Abe Singer, "Powerpoint can make you go blind", 2006, [users.sdsc.edu/~abe/readable-powerpoint.ppt](http://users.sdsc.edu/~abe/readable-powerpoint.ppt)



99.8% of California is experiencing severe drought.



## USE VISUALS TO INCREASE EMOTIONAL APPEAL



OF CALIFORNIA IS EXPERIENCING SEVERE DROUGHT



Katy French. "11 Design Tips for Beautiful Presentations", 2016, [visage.co/11-design-tips-beautiful-presentations](https://visage.co/11-design-tips-beautiful-presentations)

# Keep Typography Simple

Select a pleasant font – TUM Neue Helvetica, for example

Make sure to have it installed!

Stick to only **one** font throughout the document.

Limit the number of variations!

Slide title: 24

Main point: 18

Minor point: 14

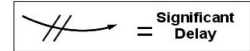
References: can be smaller, but don't go under 8



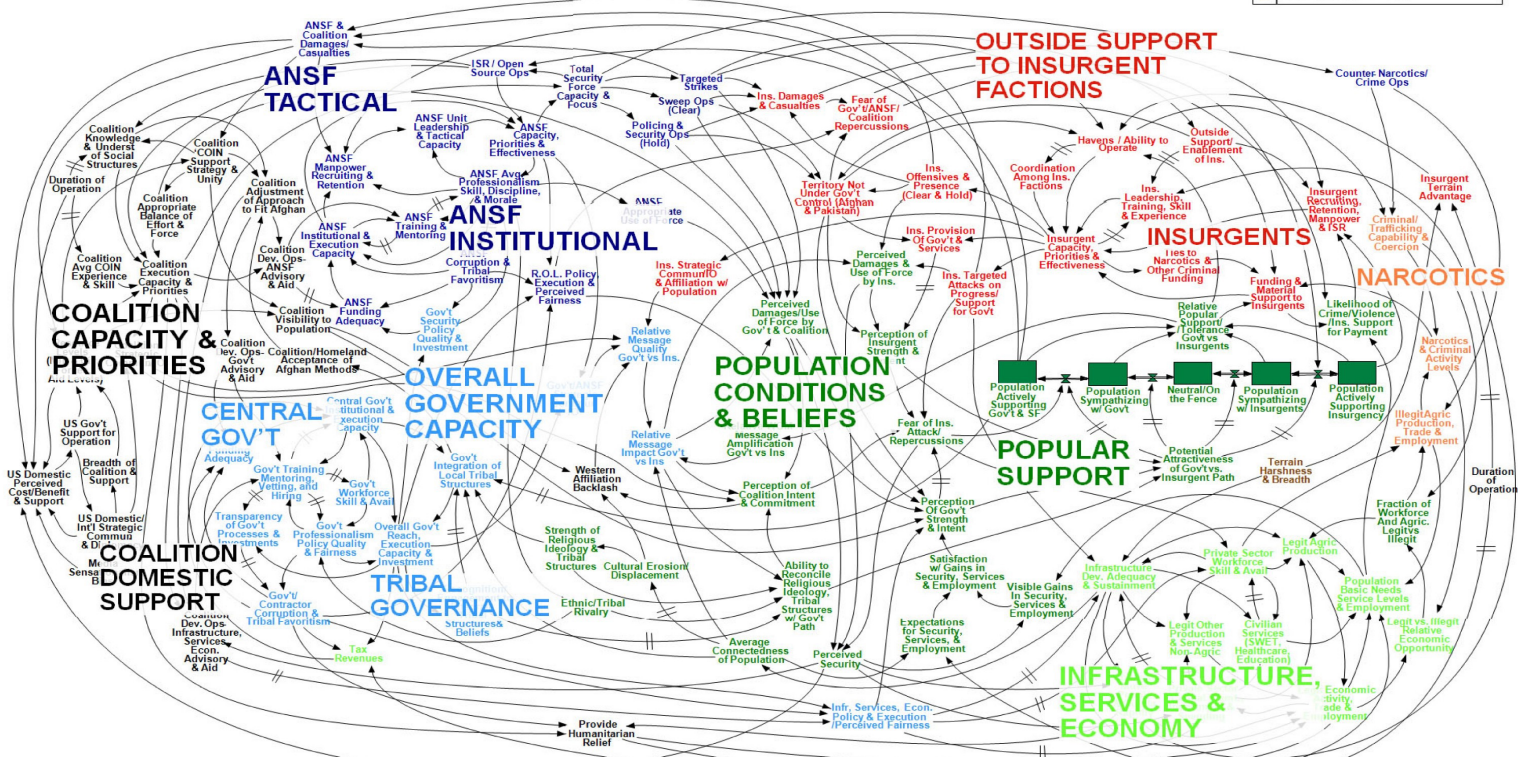
# Keep Your Graphs Simple



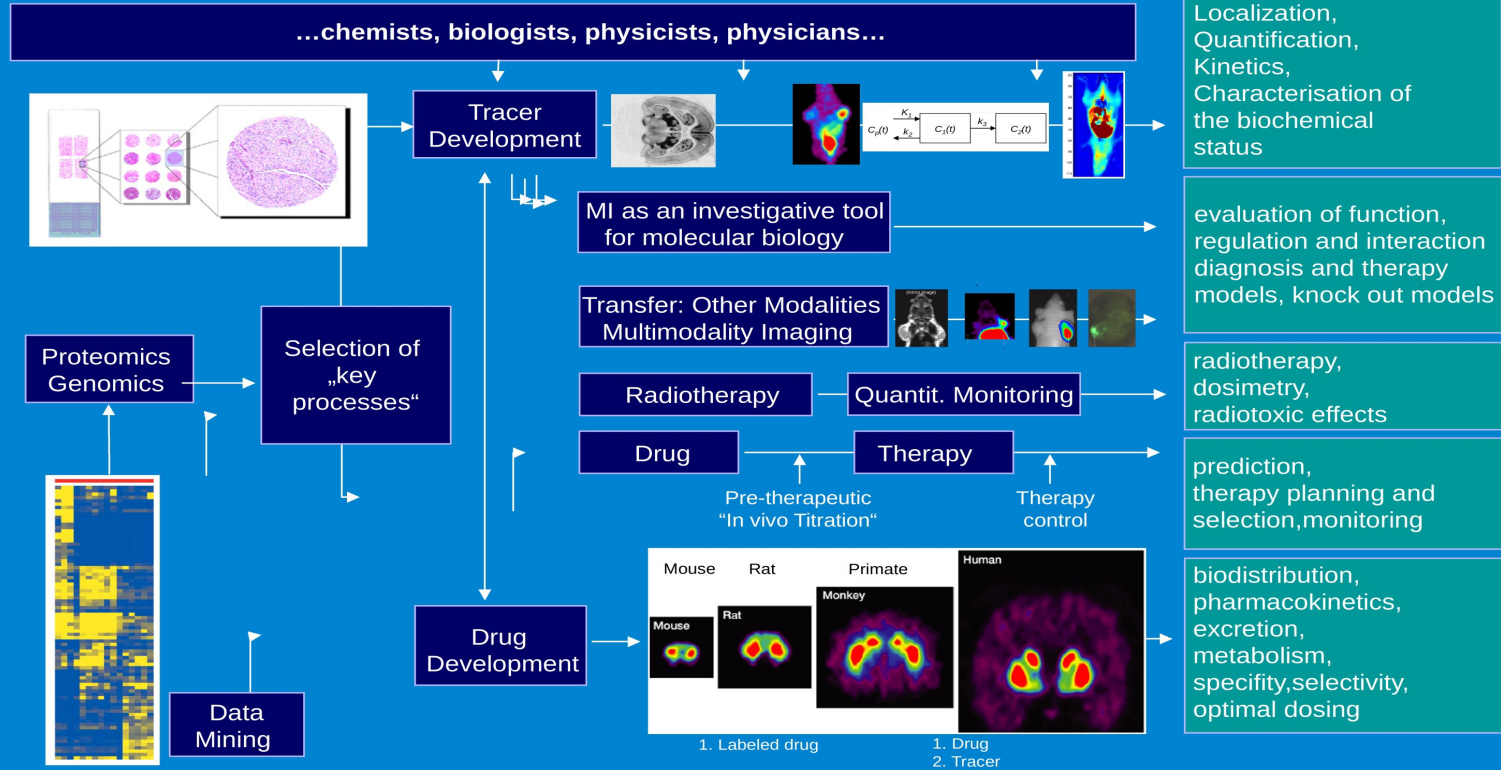
# Afghanistan Stability / COIN Dynamics



- Population/Popular Support
- Infrastructure, Economy, & Services
- Government
- Afghanistan Security Forces
- Insurgents
- Crime and Narcotics
- Coalition Forces & Actions
- Physical Environment



# Probe Development „today“





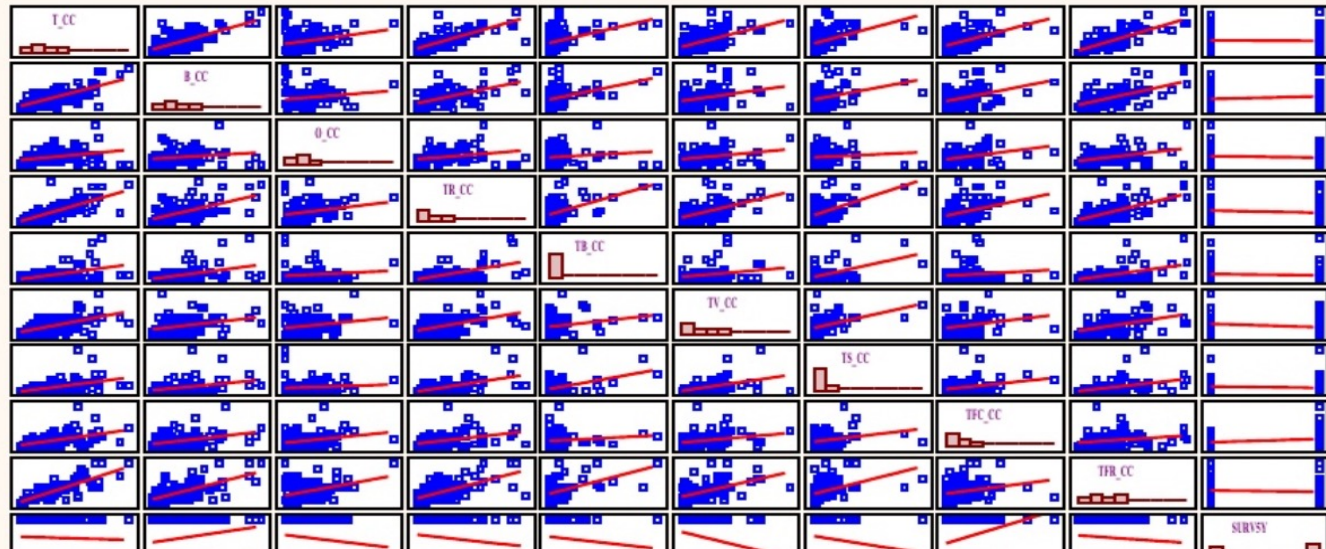
# Logistic Regression Model of System: Immune Cell Ratio Factors-Survival Lung Cancer Patients:

Correlations (ILC1.STA 117v\*108c)

Immune Cell Ratio Factors -5-Year Survival

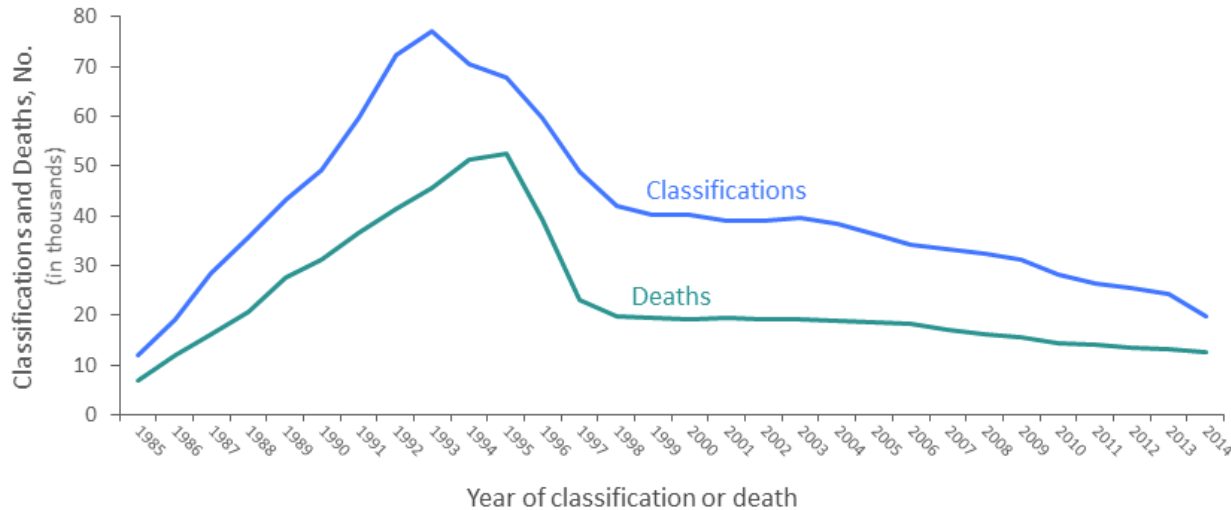
Immunology of Lung Cancer Patients (n=108)

Logistic Regression



# Keep Your Graphs Simple

## Stage 3 (AIDS) Classifications and Deaths of Persons with Diagnosed HIV Infection Ever Classified as Stage 3 (AIDS), among Adults and Adolescents, 1985–2014 US and 6 Dependent Areas



Note. Deaths of persons with HIV infection, stage 3 (AIDS) may be due to any cause.

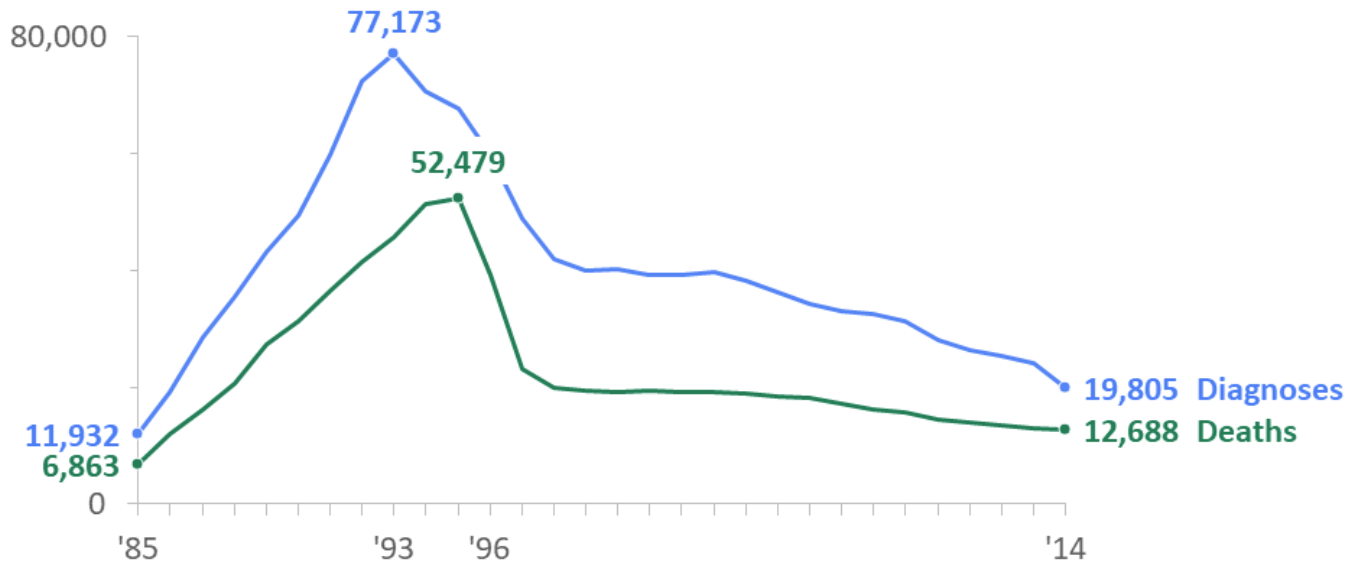
Depict Data Studio. “When Your Graph Is Too Smooshed to Read”  
[depictdatastudio.com/when-your-graph-is-too-smooshed-to-read](http://depictdatastudio.com/when-your-graph-is-too-smooshed-to-read)



# Keep Your Graphs Simple

## AIDS Diagnoses and Deaths

Stage 3 (AIDS) Classifications and Deaths of Persons with Diagnosed HIV Infection Ever Classified as Stage 3 (AIDS), among Adults and Adolescents, US and 6 Dependent Areas



Depict Data Studio. "When Your Graph Is Too Smooshed to Read"  
[depictdatastudio.com/when-your-graph-is-too-smooshed-to-read](http://depictdatastudio.com/when-your-graph-is-too-smooshed-to-read)



# Keep Your Graphs Simple

A new short title

We don't want the audience to be reading

Delete vertical label on the y-axis

Delete horizontal label on the x-axis

Abbreviate the years (1985 to '85)

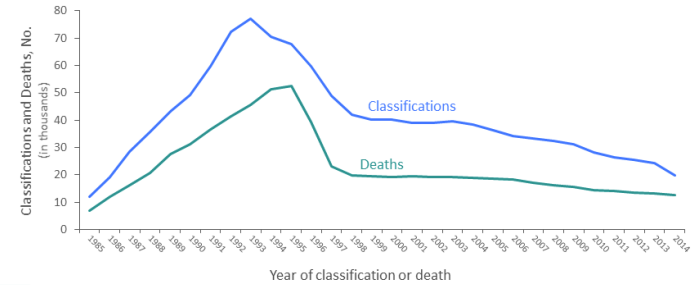
Only label a few milestone years

Add a few numeric labels along the line

Increase all font sizes

Remove the logo

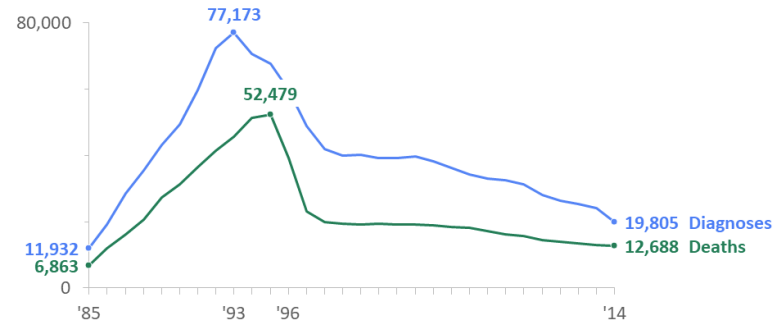
Stage 3 (AIDS) Classifications and Deaths of Persons with Diagnosed HIV Infection Ever Classified as Stage 3 (AIDS), among Adults and Adolescents, 1985–2014  
US and 6 Dependent Areas



Note: Deaths of persons with HIV infection, stage 3 (AIDS) may be due to any cause.

## AIDS Diagnoses and Deaths

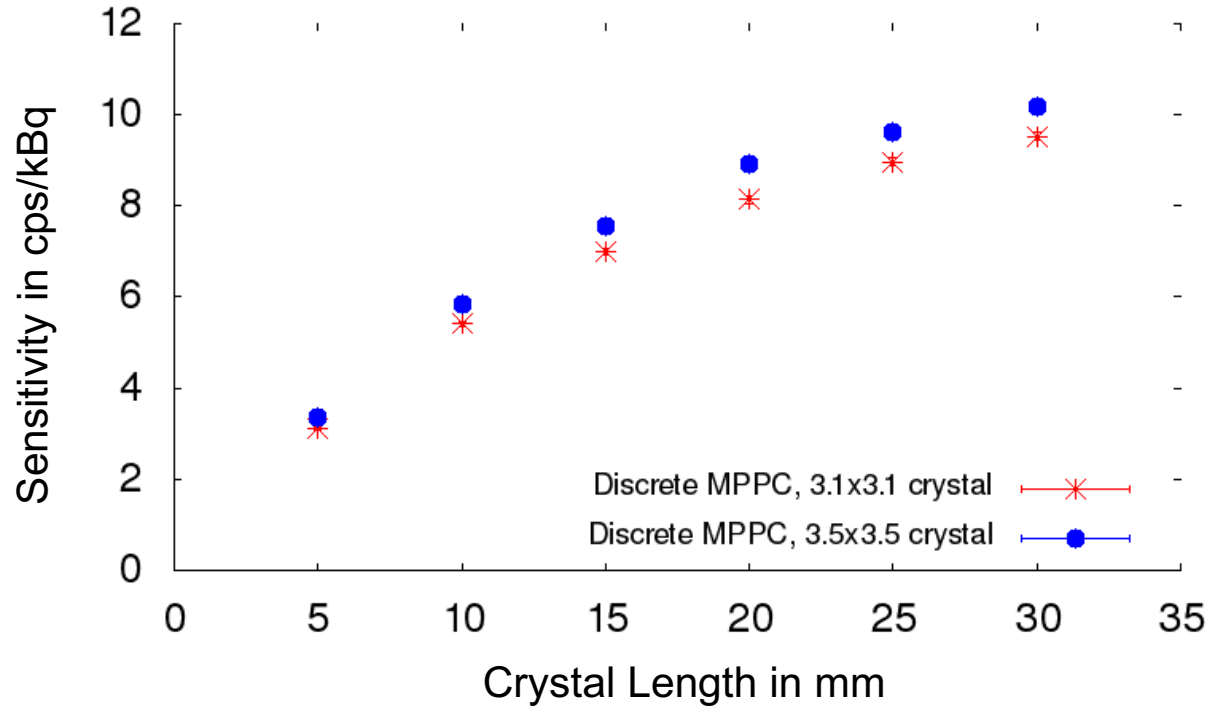
Stage 3 (AIDS) Classifications and Deaths of Persons with Diagnosed HIV Infection Ever Classified as Stage 3 (AIDS), among Adults and Adolescents, US and 6 Dependent Areas



Depict Data Studio. “When Your Graph Is Too Smooshed to Read”  
[depictdatastudio.com/when-your-graph-is-too-smooshed-to-read](http://depictdatastudio.com/when-your-graph-is-too-smooshed-to-read)



# Sensitivity decreases with crystal length





# General content of a presentation



# Introduction

## Goal of the work

What do you want to do

## Background – (medical) purpose

Which application do you target?

What are the problems encountered?

Why does this have an impact?

## Other approaches to the topic

What other attempts have been made?

Why did they fail?

What could be improved?

## Literature review

It is your duty to find other literature!



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What other attempts have been made?

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What could be improved?

## Literature review

It is your duty to find other literature!

**Do not forget to reference your literature!**

Vaswani, Ashish, Noam Shazeer, Niki Parmar, Jakob Uszkoreit, Llion Jones, Aidan N. Gomez, Łukasz Kaiser, and Illia Polosukhin. "Attention is all you need." *Advances in neural information processing systems* 30 (2017).





# Methods and Materials

## Theoretical approach

Which mathematical framework is used?

How is this framework applied to the question?

What workflow is implemented?

You need to explain the general concept, not every step!

## Experimental setup

How is the theory proven?

Which devices are used?

Is this sufficient to confirm the theory?



# Results

## Results

Focus on the main results

No need to show us each and every graph!

Which interpretation is given?

## Show important pictures

You can also simplify graphs!



# Discussion

What do you think of your work?

Is it complete?

Are there flaws?

What would you do differently?

Additional experiments?

Different experiments?

How does it compare to other work?

Do your literature research!



# Conclusion

A single slide

Only the most important keywords

No new information!





# Presentation Requirements



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# Make us feel you actually care

## Good slides

- clear layout

- check spelling and grammar

- visually pleasant

## Clear speech

- rehearse before presenting

- speak clearly

- make sure you know the pronunciation of all words you use

- look at the audience



# Stay within the allotted time

- Exceeding the time will be penalised
- Requirements Presentation
  - 5 minutes per presenter
  - we interrupt you at 5 min 30 s
  - 2 minutes for questions
- Intermediate and Final
  - 7 minutes per presenter
  - we interrupt you at 7 min 30 s
  - 3 minutes for questions
  - Final: optional 4 minutes for **live** demos



# Presentation Logistics

Respect the speaker and listen

We expect you to participate in the question session after each talk.

Upload the slides latest at the day of your presentation (see course website).





# Few slides, keep it simple

- Title slide
  - Background and Motivation
  - Problem Statement
  - Stakeholders
  - Requirements and Specifications
  - Tasks
  - Relevant UML diagram (e.g. Use Case)
  - GANTT Project Plan – work packages and milestones
- **Keep in mind you have only 5 minutes!**



# Put References on your Slides!

You are doing a literature work.

You have to back your facts by references.

Put **full reference** on the slide!

Author, Title, Year, Journal/Conference

**Nobody** reads a “References” – slide at the end.

Often it is not even shown.



# Put References on your Slides!

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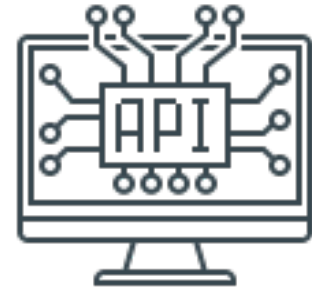
**Nobody** reads a “References” – slide at the end.

Often it is not even shown.



# Put References on your Slides!

- For graphs, images, icons etc. which you do not own:



© KOLO design (iconfinder.com)

- “google.com” is not a sufficient source!
- Please refrain from using [Hyperlinks](#). If someone takes a photo of your presentation, the source should still be clear!



# Giving an Online Presentation

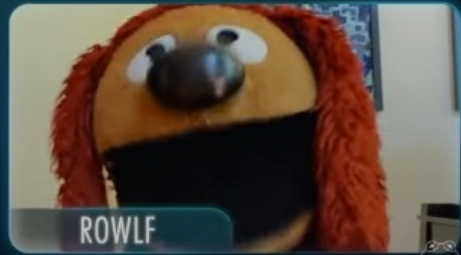
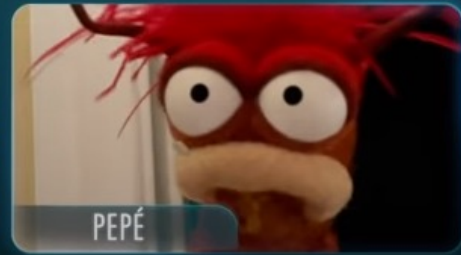


Image source: The Muppets, "The Muppets Video Call | Muppets Now | Disney+", YouTube, 2010, [youtu.be/CggADi00cvY](https://youtu.be/CggADi00cvY)

# An Online Presentation is not Only to Get Facts Across

There is a **social component** to communication.

Two senses to absorb your presentation: **Sight and sound**.

In a teleconference call, the quality of these channels is **reduced**.

**Make sure to use them effectively.**

You **don't need to get special equipment**; you likely have sufficient things.



Jefferson Graham, “Six tips for looking great in a Zoom meeting”, 2020,  
[eu.usatoday.com/story/tech/2020/04/11/zoom-meetings-go-better-these-6-tips-look-your-best/5125980002/](https://eu.usatoday.com/story/tech/2020/04/11/zoom-meetings-go-better-these-6-tips-look-your-best/5125980002/)

# Online Meetings are Exhaustive

## *"Zoom Exhaustion & Fatigue"*

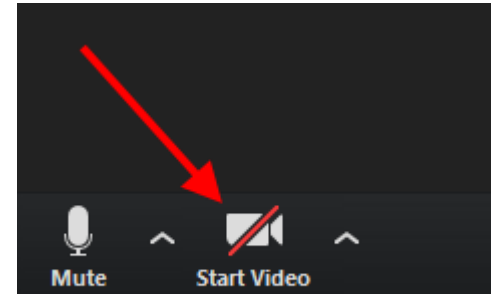
1. Excessive amounts of **close-up eye contact** is highly **intense**.
2. **Seeing yourself** during video chats constantly in real-time is **fatiguing**.
3. Video chats dramatically **reduce** our usual **mobility**.
4. The **cognitive load** is much **higher** in video chats.

We have to work harder to send non-verbal signals.

But **social interaction is even worse**, when camera is off!

(90% of the way we communicate is non-verbal)

Therefore: **Show video!**



Bailenson, J. N. (2021). Nonverbal Overload:

A Theoretical Argument for the Causes of Zoom Fatigue. *Technology, Mind, and Behavior*, 2(1).

Lauren Griffiths, "Share Video! ", 2020, [tosstheheadshot.com/2020/10/turn-that-camera-on.html](https://tosstheheadshot.com/2020/10/turn-that-camera-on.html)



# Optimize Video

Webcams and laptop cameras are often bad.

Cheap cameras perform the worst in low light but can be fine in good lighting.

→ **Good lighting conditions** (well lit, no strong backlight).

Laptop cameras can be at an awkward angle.

→ Get external camera or **prop up laptop to eye level**.



Zoom Help Center, “Lighting Concepts”, 2021,

[support.zoom.us/hc/en-us/articles/360028862512-Lighting-Concepts](https://support.zoom.us/hc/en-us/articles/360028862512-Lighting-Concepts)

Jefferson Graham, “Six tips for looking great in a Zoom meeting”, 2020,

[eu.usatoday.com/story/tech/2020/04/11/zoom-meetings-go-better-these-6-tips-look-your-best/5125980002](https://eu.usatoday.com/story/tech/2020/04/11/zoom-meetings-go-better-these-6-tips-look-your-best/5125980002)





# Optimize Audio

Laptop microphones are often bad or suffer from **fan noise**.

**Headsets** (even many phones come with decent ones), or inexpensive external microphones usually offer far better sound quality.

If you are **adventurous**, you can even use the audio (or video) from a **smartphone**.



Jefferson Graham, “Six tips for looking great in a Zoom meeting”, 2020,  
[eu.usatoday.com/story/tech/2020/04/11/zoom-meetings-go-better-these-6-tips-look-your-best/5125980002/](https://eu.usatoday.com/story/tech/2020/04/11/zoom-meetings-go-better-these-6-tips-look-your-best/5125980002/)

# Practice Makes Perfect

If you can, present your slides using a **second monitor**.

If you screenshare the presenter view, everybody sees the notes.

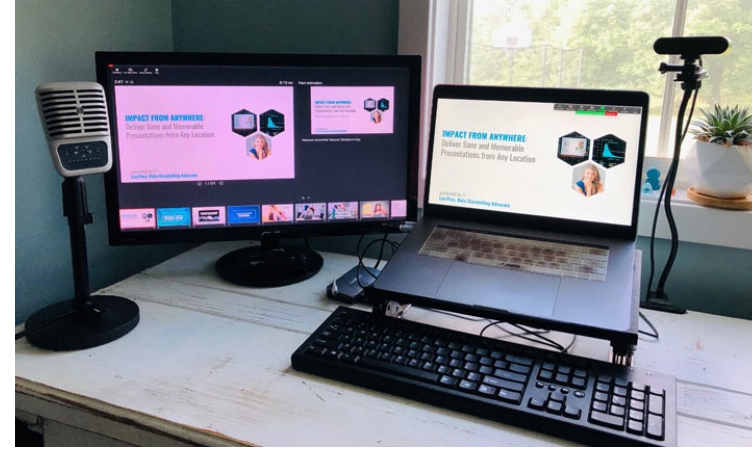
**Prepare the tech** for your presentation in advance.

Connect headphones, cameras, ethernet cable, power cable etc.

**Turn off notifications** of messengers etc.

**Do a test run.**

You can create a room in Zoom and test if everything works for you. You can even record it to look at yourself.



A dream setup.

Image source:

Lea Pica, “Zoom Tips that will Save Your Online Meeting”, 2020,  
[leapica.com/blog-zoom-tips-online-presenting](https://leapica.com/blog-zoom-tips-online-presenting)



# DON'T PANIC!

- Douglas Adams, The Hitchhiker's Guide to the Galaxy

