803400815101 Blockchain and Smart Contracts

Artificial Intelligence Technologies Program (Graduate)
Graduate School of Natural and Applied Sciences
2023 - 2024 Spring Semester

Paper Reading & Presentation Skills

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Faculty of Engineering
Department of Engineering
Ankara University



Credits

- "How to read a paper", S. Keshav, U of Waterloo, 2013
- "How to Give a Good Talk?" by Arnaud Legout, INRIA, Sophia Antipolis EPI Planète, v6, Oct 2013
 - How to give a bad talk? By David A. Patterson, Rolf Riedi, John Ousterhout, Tom Anderson
 - Presentation Zen by Garr Reynolds
 - How to give a good research talk by Simon Peyton Jones, Microsoft Research, Cambridge
- "Excellence in Oral Presentation for Technical Speakers" by Klara Nahrstedt, U of Illinois at Urbana- Champaign, 2007





Paper Reading

mostly based on S. Keshav's paper (U of Waterloo, now U of Cambridge)





Academic Paper Reading...

Those who do/can not read academic papers well and effectively cannot write/communicate!

- You spend a lot of time reading papers
 - Yet, it is rarely taught!
 - Students waste much effort in the process
- This presentation presents a practical and useful "three-pass method"

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- Very helpful for paper reading
 - For related work sections
 - Literature survey

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And, most importantly for your presentations!





Three Pass Method

- 1. First Pass
- 2. Second Pass
- 3. Third Pass



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1 - First Pass

- Quick scan to understand the bird's eye view
- Also, the filtering step to decide if the other two passes are really needed!
- Should take about 10 minutes or so
 - For beginners, it may take a little longer...





1 - First Pass -- Steps

- 1. Carefully read the title, abstract, and introduction
- 2. Read the section and sub-section headings, but ignore everything else
- 3. Glance at the figures of the framework, workflow, sequence diagram, etc.
- 4. Glance at the mathematical content (if any) to determine the underlying theoretical foundations
- 5. Glance at the results/evaluations (if any)
- 6. Read the conclusions
- 7. Glance over the references, mentally ticking off the ones you've already read

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1 - First Pass -- Outcomes (5 C's)

- <u>Category</u>: What type of paper is this? A measurement paper? An analysis of an existing system? A description of a research prototype?
- <u>Context</u>: Which other papers is it related to? Which theoretical bases were used to analyze the problem?
- Correctness: Do the assumptions appear to be valid?
- Contributions: What are the paper's main contributions?

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Clarity: Is the paper well-written?





2 - Second Pass

- With greater care but without going through proofs, if any
- Note down things you don't get or prepare questions
 - But don't fret over them yet!
- Mark relevant unread references for further reading if needed
- Should take an hour or more
- At the end of this pass, you either;
 - Dump it
 - Keep for future reading
 - Go on to the third pass





3 - Third Pass

- Main idea: Grasp it in such details as to be able to implement it.
- You should also be able to jot down ideas for future work or extensions or come up with new ideas.
 - You should be able to come up with strong and weak points
- 4-5 hours or more for beginners,
 - Likely about an hour for experts
 - May take days/weeks for beginners on complicated papers

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Doing Literature Survey

Paper reading skills are put to the test in doing a literature survey. This will require you to read tens of papers, perhaps in an unfamiliar field.

- Question: What papers should you read?
- You can use the 3-pass method here!





Literature Survey with 3-pass method

- 1. Use an academic search engines/databases
 - Google Scholar, Citeseer, IEEE Xplore, ACM DL, Elsevier DL, Springer DL, Wiley
- 2. Try to find a few recent papers in the area
- 3. Do one-pass for each
 - If no survey paper available, very high chances for a publication ©
- 4. Find and get familiar with shared and repeated author names in the bibliography and the publication sources

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5. Two-pass for the papers from the previous step





Presentation Hints





Outline

- Why should you bother doing talks?
- How to structure your talk?
- How to make your slides?
- How to give your talk?
- Great talks examples





Why?

Presentations are a fundamental part of excellence in professional careers





Caveat

- In the following slides, the subject is chosen as "researcher"
- You can substitute it with
 - Student or worker/employee in industry or company in the professional career





Research and Marketing

■ The best researchers in the world learned how to sell their work, ideas, projects, etc.





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Goals of a Presentation

- Give the audience the intuition of your idea
- Make the audience eager:
 - To listen to you until the end and pay attention
 - To learn something new from you
 - To ask you questions
 - To discuss with you
- Build relationship
- Create a reputation
- Get feedback





Goals of a Presentation

Show you can make great presentations



 Conversely, a poor presentation can kill an application to a new position

Each talk is an interview talk



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Can You Trust Me?

- Make your own opinion
 - Attend/watch presentations
 - Mimic presentations you understand/like
 - Big plus if it is not your field and you understand
- Never consider <u>simplicity</u> and <u>clarity</u> as proof of weakness: this is <u>TALENT</u>

You can violate the rules if you have a very good reason to do so





Outline

- Why should you bother doing talks?
- How to structure your talk?
- How to make your slides?
- How to give your talk?
- Great talks examples





Tell a Clear and Convincing Story





Define First Your Message

- The audience will remember at most one single message
 - Which message you want the audience to remember?
 - Can you express this message in less than a minute in an elevator?
 - Known as "elevator pitch"
- Tailor your talk according to this message

Don't sell more, but sell it well





Do Not Present Too Much

Common pitfall

- "I did a lot and I will present every single bit of my work. They will be impressed!"
 - That shows you are unable to deliver a message
 - Remember information overload
- Do not hesitate to cut your results
 - Better to present 10% that the entire audience understand than 90% nobody understands





Adapt to the Audience

- The entire audience must understand your talk
 - Better to explain notions a part of the audience already knows than to lose another part during the talk
- Do not <u>overestimate</u> the knowledge of the audience in your field





Give a Structure to Your Talk

- Give a background
 - Adapt to the audience
 - Adapt the technical granularity of your presentation
 - Make it fun and catchy
- Motivate your work
 - Why is the subject important and interesting?
- Focus of your work
 - What is this presentation/work about in a single sentence? What is the problem?





Give a Structure to Your Talk

Conclude with a summary

Tell a story from the background to the conclusion





Give a Structure to Your Talk

• Give an outline

- · You can give it first before going further in your talk
- Repeat the outline before each new part of your talk
- Use color to show where you are
- Make clear the structure of your talk to the audience





Alternate Structures

- No slides
 - Need to be a very strong speaker
 - Need a very well structured presentation
 - Need a very high effort from the audience
 - You must transmit energy
 - Some (lazy) people don't like such presentations





Make Summaries

For each important result

At the end of each part of your talk

Clearly show the take-home messages





Questions You Must Ask Before You Prepare Your Talk

- My goal?
- My single message?
- Audience?
 - Background, knowledge, size, expectations
- Duration?
 - For the talk, for the questions
- Room characteristics?
 - Size, position of the screen, my position

Adapt your talk and material to each context





Outline

- Why should you bother doing talks?
- How to structure your talk?
- How to make your slides?
- How to give your talk?
- Great talks examples



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Clarity and simplicity

"You give the talk; slides support it. Never compete with them, you will lose!"





Slide Template

- Avoid overloaded templates
 - Frequent with some companies that like to justify a costly graphical identity
- Unless you have a graphical talent, keep it simple
 - Make a clear distinction between the title and the rest
 - Do not use complex headers or footers
 - No need to give the presentation title, affiliation, authors list, company logo, etc. on each slide





Use Slide Numbers

- How do you know which slide it is over 30?
 - "The slide whose title is 'Use Slide Numbers"
 - "The slide after 'Presentation Guidelines'"
 - "I don't remember, go back, again, again, again, again, stop... yes this one!"

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- Used to ask questions and to practice
- Used during audio or video conferences
- At least 20 pt
 - Even at the back someone may ask a question





Use Slide Numbers

- In some cases, it is also useful to add the total number of slides
 - For a defense or a short talk
 - Easy way for the jury or the audience to assess whether you are close to the conclusion and will not exceed your allocated time
- For longer talks don't show the total number
 - A large number of remaining slides might be discouraging





Use Large Fonts

- Font must be larger than 24pt (here it is 28pt)
- Font must be larger than 24pt (here it is 24pt)
- Font must be larger than 24pt (here it is 20pt)
- Font must be larger than 24pt (here it is 18pt)
- Font must be larger than 24pt (here it is 16pt)
- Font must be larger than 24pt (here it is 14pt)
- Where do you stop to read it from the back?
 - Consider poor projectors, poor screens, poor eyes, etc.





Be NEAT

- Do YOU like this one?
 - slides with sppell check erors
 - Inconsistant:
 - Capitalisation
 - Bullet.
 - Struture,
 - font;
 - Ugly slides
 - poor use of symbol !!!



Be Neat

Do you like this one?

- Slides with spell check errors
- Inconsistent
 - Capitalization
 - Bullets
 - Structure
 - Font
- Ugly slides
- Poor use of symbols
- Poor layout





Use Meaningful Titles

■ The title should summarize the slide content

- Do not use the same title with an increasing number
 - Introduction 1/5
 - Introduction 2/5
 - Etc.
- Poor variant "cont."





How Many Colors?

- No more than three/four colors on a slide
 - Here I have four

- Use easy-to-distinguish colors like dark
 - Blue, Red, and Green
- Use colors to emphasize an important word
 - May be used to remind you to develop key points





Background Colors

No

Never use light colors or low contrast They may not render well

No

Never use light colors or low contrast They may not render well

Never use light colors or low contrast They may not render well

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Yes, but ugly





Be Concise

- Avoid writing complete sentences for clarity
- Remember: Your audience can't read and listen simultaneously
 - Avoid reading slides to keep engagement high
- Omit technical details: There's no chance to cover everything in one presentation.
- Complexity doesn't impress; clarity does.





Be Concise

Write short sentences

- Do not compete with your slides
 - · You give the message, the slides support it
- Be simple/straightforward in your explanations





Should I Show One Bullet at a Time?

- Perfectly fine to show the entire slide if it is concise
 - No need to over animate
 - When appropriate, I like to show the title alone to introduce the slide

- But, if you feel you compete with your slides, show one (or a few bullets) at a time
 - Rule of thumb: do not animate bullets (or block of bullets) on which you discuss less than 20 to 30s





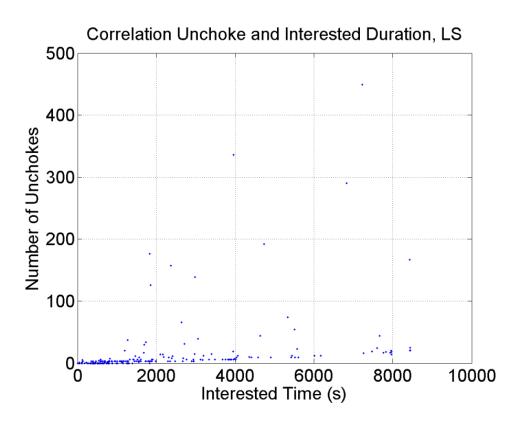
Figures, pictures, animations

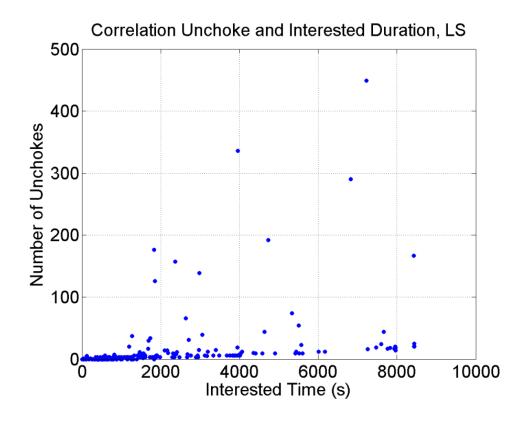
"Replace text with illustrations"





Use Large Symbols

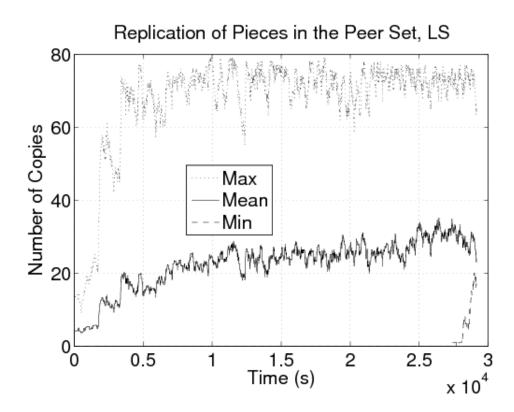


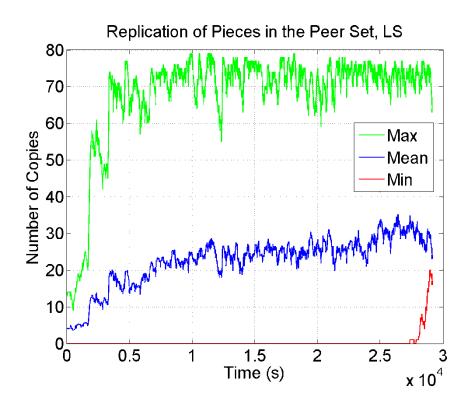






Use Thick Solid Lines and Colors



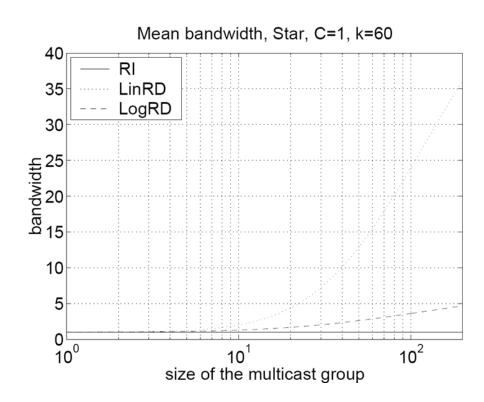


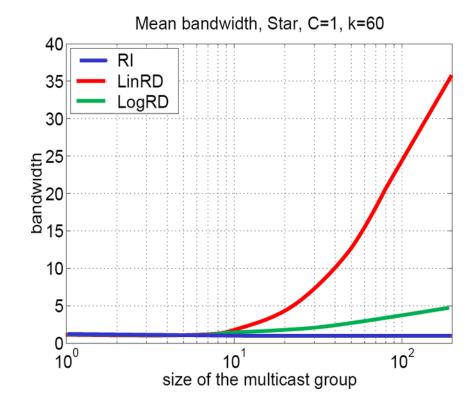




Never Use Camera Ready Figures

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Use Pictures

High quality and full screen

■ Illustrate concrete idea





The Solar System (Poor)

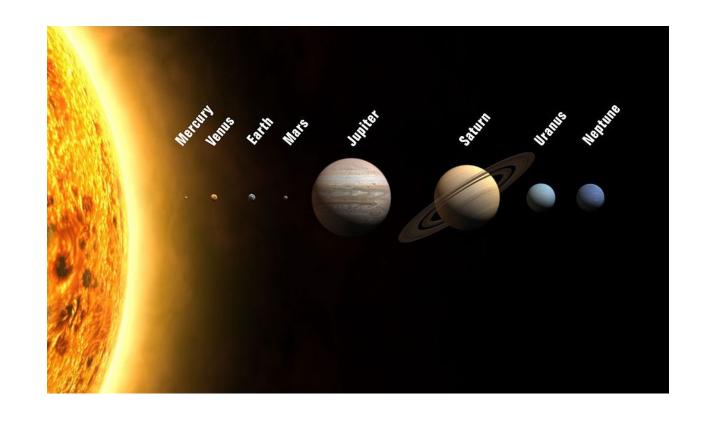
- 8 planets
 - Mercury
 - Venus
 - Earth
 - Mars
 - Jupiter
 - Saturn
 - Uranus
 - Neptune





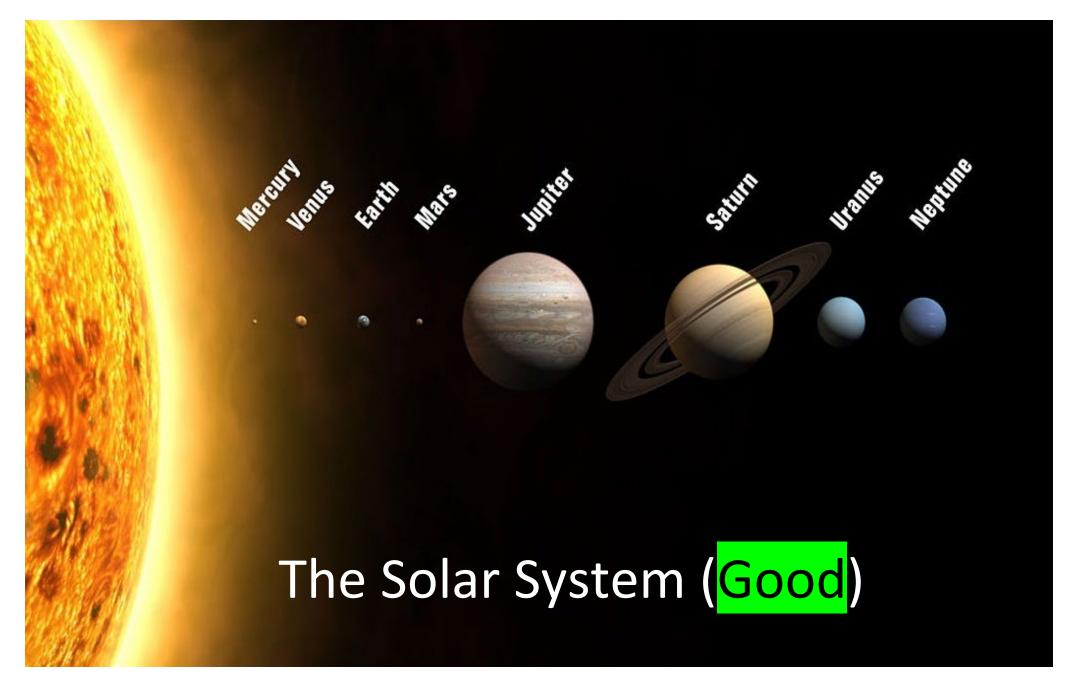
The Solar System (Still Poor)

- 8 planets
 - Mercury
 - Venus
 - Earth
 - Mars
 - Jupiter
 - Saturn
 - Uranus
 - Neptune













Do Not Over Illustrate

- Do not use
 - Irrelevant illustrations

Weak metaphors

Animated images















Use Illustrations

- Make your point clear and simple
- Give a mental image that people are more likely to remember
- Always use a figure instead of a table





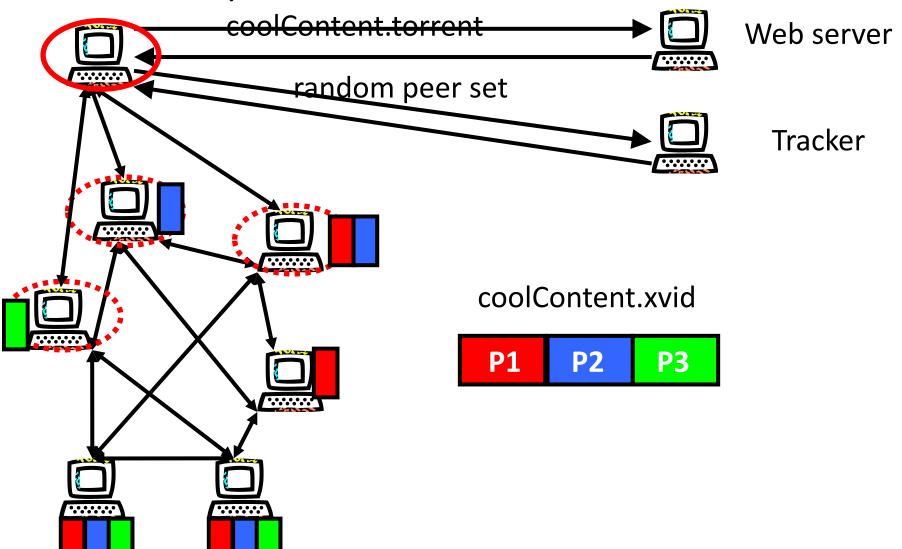
Without Illustrations (Poor) Example: Peer-to-Peer (P2P) Network

- Prior to distribution
 - Content split multiple pieces
 - Metainfo file created by the content provider
- To join a torrent
 - Peer P retrieves metainfo file from a well-known website
 - P contacts the tracker
 - The tracker responds back with a peer set of randomly selected peers
 - P contacts peers in this set and start requesting different pieces of the content





Without Illustrations (Better) Example: Peer-to-Peer (P2P) Network







Use Enlightening Animations

- Animations must make complex idea simple to grasp
- No magic, it is a lot of work to make
- Here are two examples



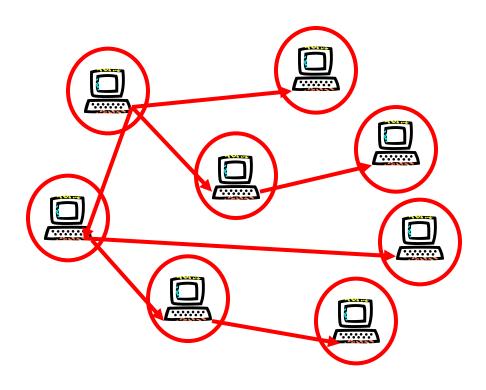


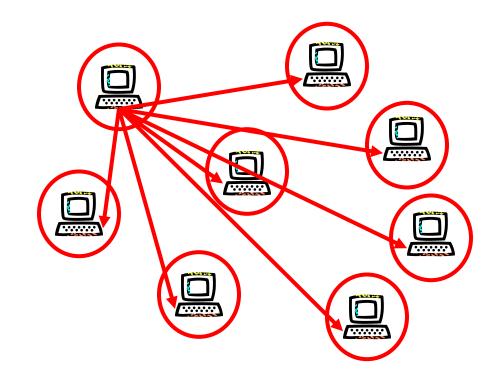
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Use Enlightening Animations: P2P case

P2P











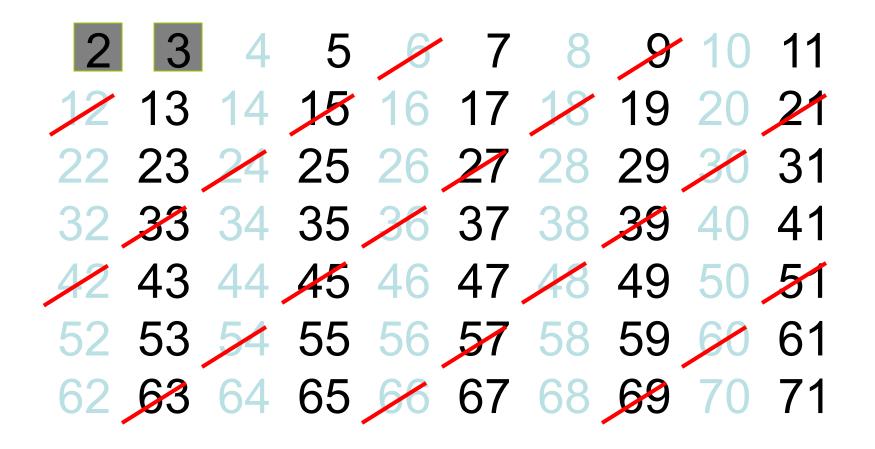
A number is prime if it can only be divided by 1 or by itself

2	3	4	5	8	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21
22	23	24	25	26	27	28	29	30	31
32	33	34	35	36	37	38	39	40	41
42	43	44	45	48	47	48	49	50	51
52	53	54	55	56	57	58	59	60	61
62	63	64	65	66	67	68	69	70	71



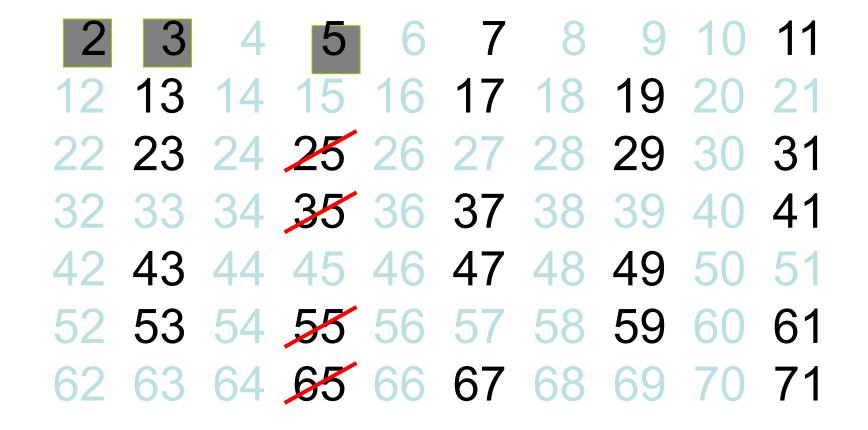
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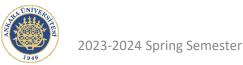


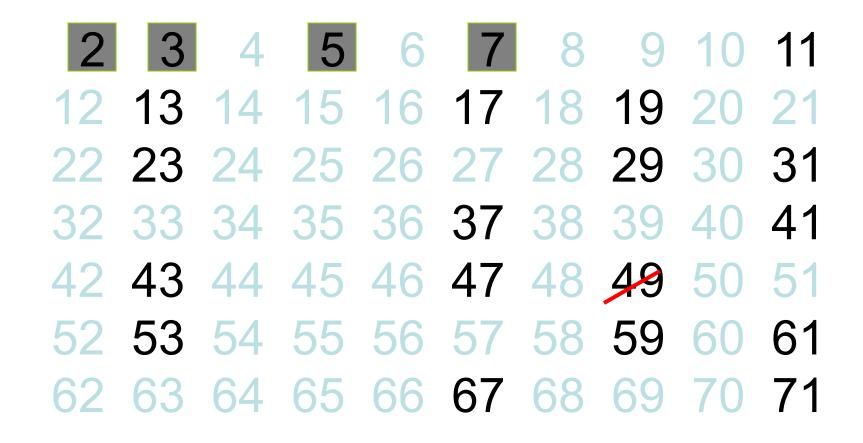
Credit: G. Berry, Collège de France, 25/01/08





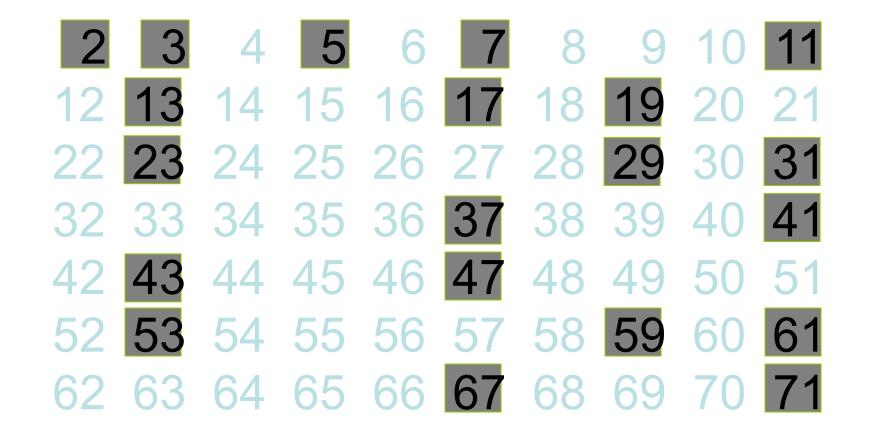
Credit: G. Berry, Collège de France, 25/01/08



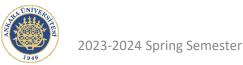


Credit: G. Berry, Collège de France, 25/01/08





Credit: G. Berry, Collège de France, 25/01/08



Do Not Over Animate

- It is disturbing
- Annoying

Useless





Design and Presentation Zen

- Should you focus on the design of the slides?
 - Matter of time and money
 - Address issues by order of priority
 - 1. A well-defined and clear message
 - 2. A well-structured (and fun) story
 - 3. Adapt to the audience
 - 4. Tell your story with passion
 - 5. Make beautiful slides

Slides are not the talk, they just support it





Design and Presentation Zen

- You cannot compete with Steve Jobs
 - He had an army of collaborators working on the keynotes
 - He had a visionary designer talent and stunning charisma
- But, you can get close by targeting clarity and simplicity
- To improve your design skills read
 - Presentation zen by Garr Reynolds
 - Slide:ology by Nancy Duarte





Clarity and simplicity (Poor)

- You give the talk
 - slides support it
- Never compete with them, you will lose!







Clarity and simplicity

"You give the talk, slides support it. Never compete with them, you will lose!"







Clarity and simplicity

"You give the talk, slides support it. Never compete with them, you will lose!"

Why You Have So Much Text in Your Slides?

- For any other public talk from 5 to 30 minutes (that is, 99% of the talks you will have to give)
 - Very few text
 - A lot of illustrations

- For longer talks (tutorials, lectures...)
 - You might need text
 - But focus on clarity, simplicity, and illustrations





Outline

- Why should you bother doing talks?
- How to structure your talk?
- How to make your slides?
- How to give your talk?
- Great talks examples



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Practice Practice Practice Practice

Have fun





How to Show Something on a Slide?

- You can touch the screen
 - Really touch the screen
 - Don't shake the hand 5 meters in front of the screen
 - Not always possible
 - Screen might be too high or too far
 - Not the most professional solution





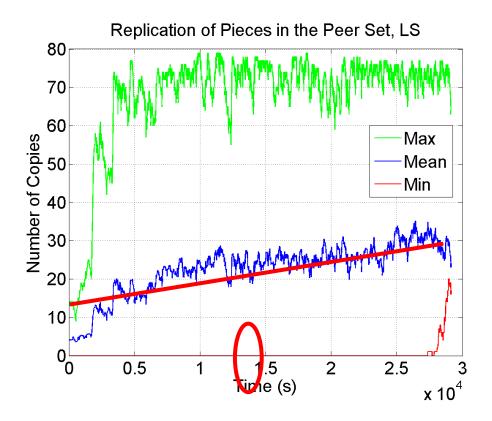
How to Show Something on a Slide?

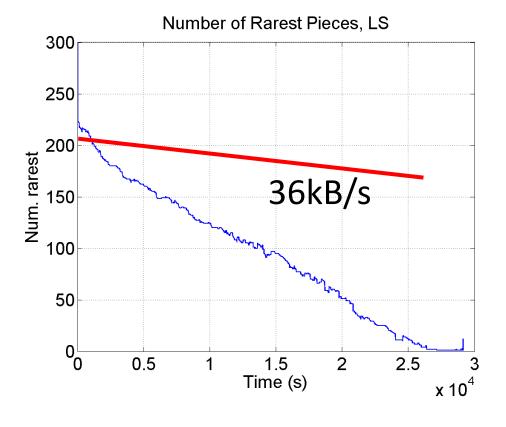
- You can use neat animations
 - Works in any case
 - Safe side
 - Many excellent options
 - Square, circles, ovals, arrows, etc.
 - See examples in the following





Use Thick Lines

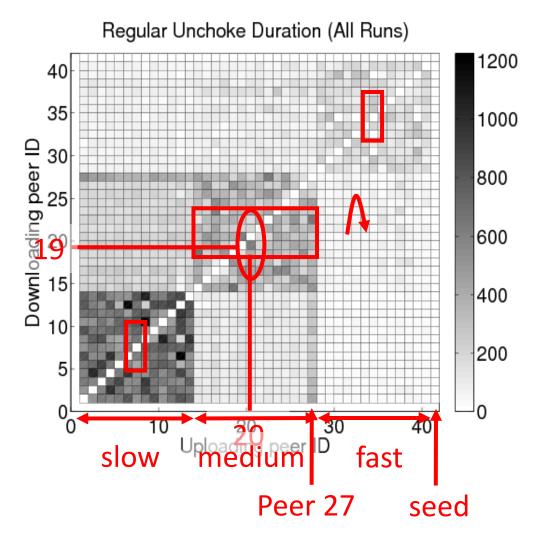








Use Thick Lines

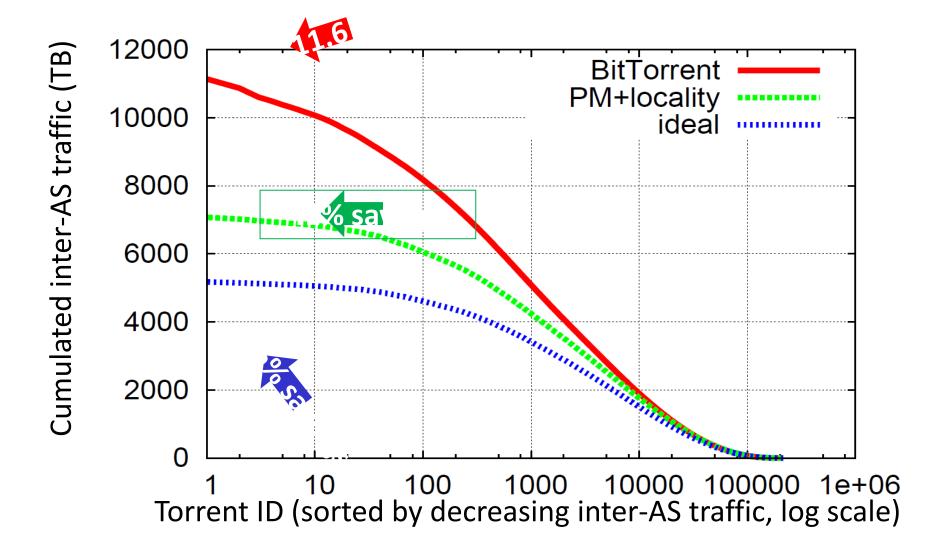




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Use Arrows



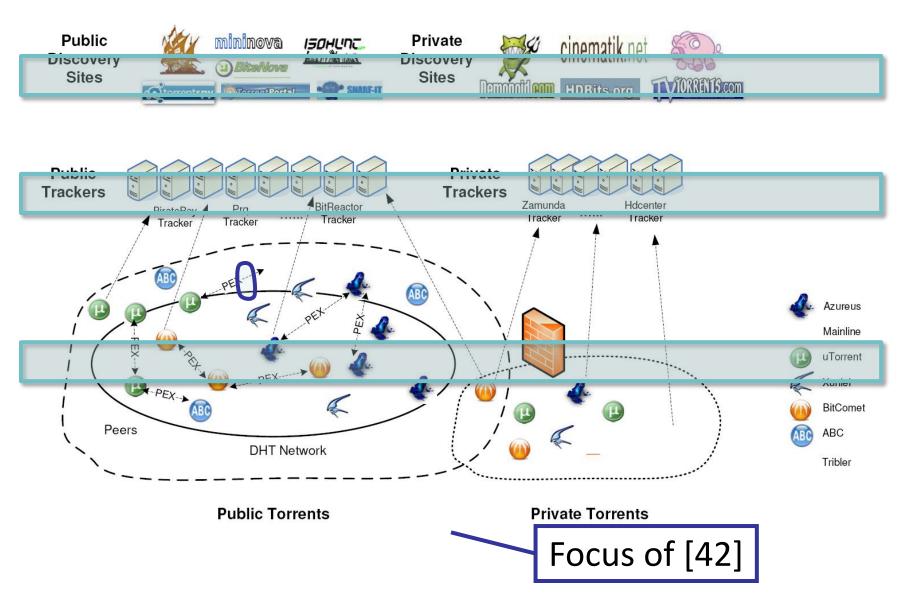
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Use Semi-Transparent Squares

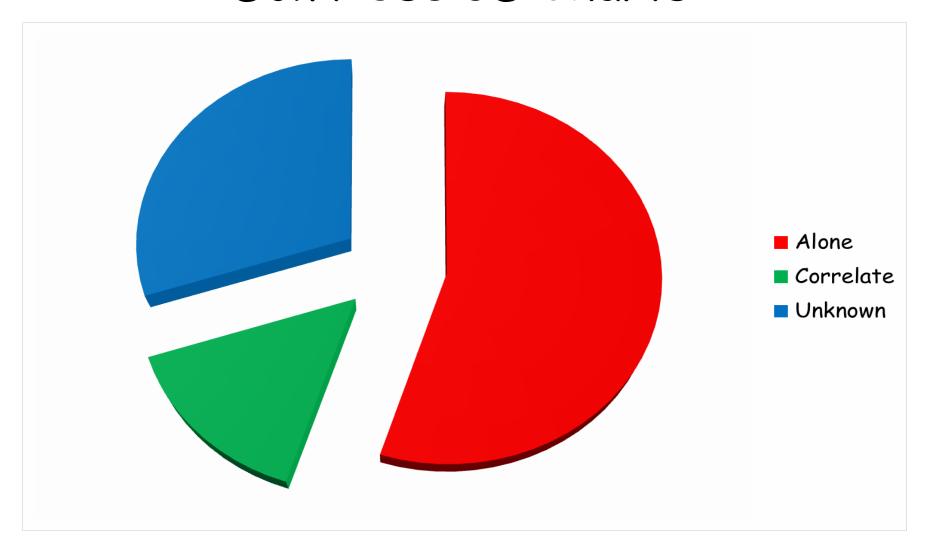


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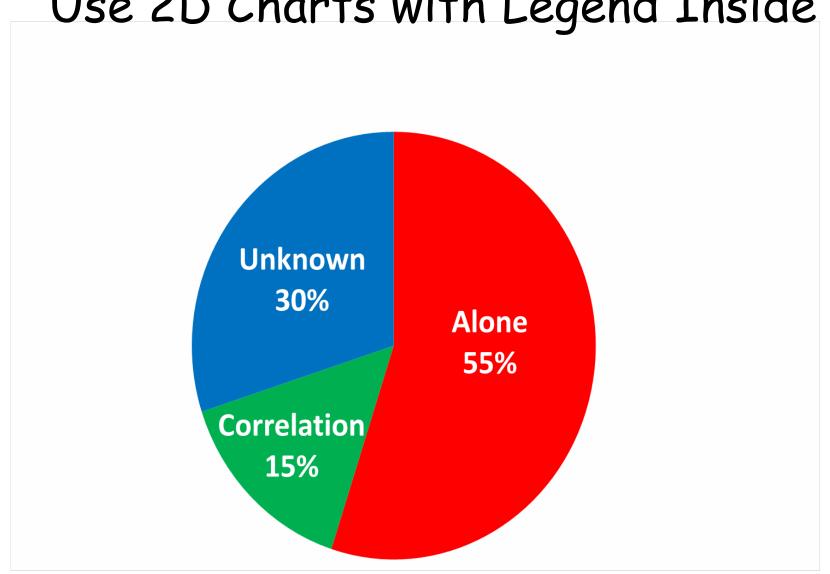
Don't Use 3D Charts







Use 2D Charts with Legend Inside







Explain All Slides

- Never present a slide you do not explain in details
 - Always drop a slide if you present it for less than 30 seconds
 - Spend time on complex figures or drop them
 - Spend time on equations or drop them
 - Talk on transition slides (e.g., outline reminders) or drop them
 - Use transition to summarize the previous part and introduce the next one





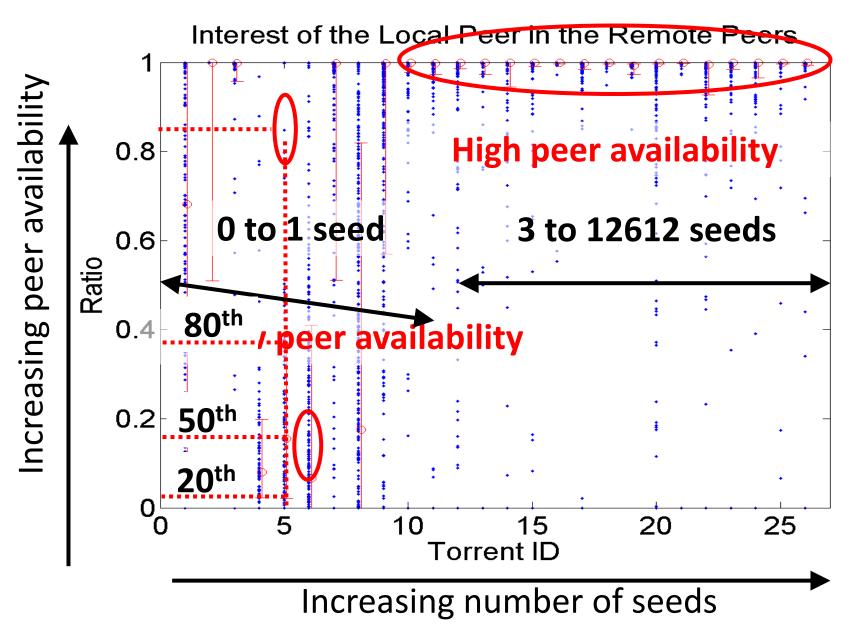
Minimum Explanation

- For each figure, you must
 - Give for each of the x-axis, y-axis, and z-axis
 - Label, unit, scale (if log scale)
 - Give the legend
 - Explain all symbols
 - Take an example to illustrate a specific point in the figure
 - Very useful if the figure is complex





Example for a Figure





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Example for an Equation

$$\bar{B}_{RI} = \frac{1}{k+m} \sum_{i=1}^{k+m} \frac{C}{k+1} = \frac{C}{k+1}$$

$$\bar{B}_{LinRD} = \frac{1}{k+m} \left(\sum_{i=1}^{k} \frac{C}{m+k} + \sum_{i=1}^{m} \frac{mC}{m+k} \right) = \frac{k+m^2}{(k+m)^2} C$$

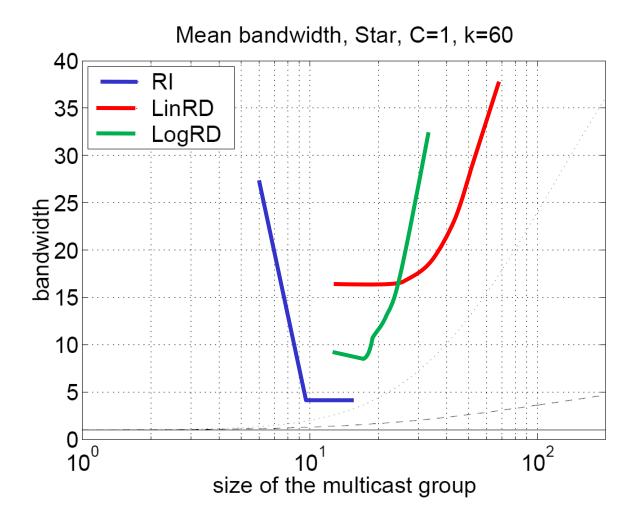
$$\bar{B}_{LogRD} = \frac{1}{k+m} \left(\sum_{i=1}^{k} \frac{C}{k+(1+\ln m)} + \sum_{i=1}^{m} \frac{C(1+\ln m)}{k+(1+\ln m)} \right) = \frac{k+m(1+\ln m)}{(k+m)(k+1+\ln m)} C$$

You will not look more clever if you show equations and don't explain them

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But, Prefer the Figure to the Equation







Introduce and Summarize Slides

- For each important slide
 - Say a one-sentence introduction
 - What you are going to discuss now
 - Say a one-sentence summary
 - If the audience has to remember a single sentence it is this one

For very important results, show the take-home message





Be Redundant

- Repeat several times
 - I'm going to explain...
 - My explanation is...
 - I just explained...
- Never too much redundancy





Never Exceed Your Allocated Time

- This is a lack of respect for the audience and the next speakers
 - Not admissible, not professional
- Should never happen if you are well-prepared





Never Exceed Your Allocated Time

- In case you feel you will exceed the allocated time
 - Drop slides
 - No problem to drop a full part
 - Never drop summary of contributions
 - Never stop in the middle of somewhere





One Slide Every Two Minutes

■ 1 slide/~2 mins

- Usually everybody agrees
- Now, count!
 - 10 minutes means 5 slides
 - 20 minutes means 10 slides
 - How many slides do you have for a 20-minute talk?
 - I have seen for 20 minutes people with more than 50 slides full of text!





One Slide Every Two Minutes

- You can violate this rule if
 - You have time to explain in details all slides
 - You will not exceed your allocated time
 - You will not speak much faster
- Hard to spend on average per slide
 - less than 1 minute (really short)
 - more than 3 minutes (start to be boring)



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Use a Watch

- On a room wall, in front of you
 - So that you can see it, but not the audience
- On your desk
 - Digital one with large enough numbers
- On PowerPoint
 - Presenter mode
 - Very convenient, you can get comments and a few slides before and after the current one





Q&A

- Reformulate questions
 - Make sure you understood them
 - Make sure everybody hear them
- Be concise in your answer
- Do not start a discussion
 - Never get into argumentative discussions
 - *"I propose to continue this interesting discussion during the break. Another question?"





Q&A

Never bluff or lie

- Acknowledge when you don't have the answer
 - "Thank you for that point, I don't have an answer now. We will definitely look at it."
 - "I don't know this article, but it looks similar to what we did. Can you send me the pointer?"
 - Never forget to send back your answer by email.





Use Your Body

- Use eye contact
 - Do not stare (no more than 10 seconds)
 - Do not avert or switch fast
- Use your hands
 - To support visually what you say
- You can walk, but
 - Do not stand in front of your slides
 - Do not continuously walk along a line
 - Walk on a triangle and stop at each vertex





Use Your Body

- Stay in front of the audience
 - Aside the slides, but not in front of them
 - Do not show your back or your side
 - Do not persistently move while speaking





Use Your Voice

- Make a short pause before each important message
 - In the order of a few seconds
 - Pauses are even more effective than raising voice
- The rhythm of the speech is what makes a big difference to catch the attention





Use Your Voice

Vary your voice level

- Speaking softly catches better the attention than speaking even louder
 - Alternating loud and soft speech catch the best attention
 - You need to practice a lot to find the right balance
- My rule of thumb
 - Make a pause and speak softly before a very important result
- Never read your slides or notes



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Show Enthusiasm

- If you don't show enthusiasm in presenting your own work, do you believe that the audience will be enthusiastic:
 - Listening to you
 - Reading your work
 - Inviting you
 - · Discussing with you





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Practice

- Best speakers practice the most
 - No improvisation or spontaneity
 - To look spontaneous you even need to practice more
- Stand up and speak with loud voice to practice
 - Practice at least once using a projector
- Practice with colleagues (once well-trained)
- The shorter the talk, the more you have to practice

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Be prepared to answer hard/aggressive questions





Practice

- To prepare a 20-minute talk
 - Three days for the first version of the slides
 - Around 10 rehearsals in front of your desk
 - Around 5 "in situation" rehearsal
 - Final version of the slides
 - Stand up
 - Speak loud
 - May use a real projector
 - Stringent time constraint
 - In front of colleagues





Practice vs. Energy

- How do you protect energy if you lose it during rehearsals?
 - Don't repeat the day of your presentation, and only once the day before
 - Sleep well the night before
 - Convert your stress into energy



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Practice vs. Energy

- Practice permits to control the energy
 - Theatre actors performing on stage every day have to project a lot of energy
 - The more they perform, the more the energy they project is appropriate
 - The less you practice the more you will use your energy to
 - Keep the focus
 - Find what to say
 - Fight against your stress





Practice and Experienced Speakers

- Experienced means +50 presentations or +100 hours of presentations
 - If it is not your case, you will never practice too much
 - If you are that experienced, you will probably not have time to practice that much
 - Your experience will somewhat compensate for the lack of practice
 - But, if you have a tight schedule and want to impress, you will have to practice





Dress Well

- Always dress better than the audience
 - Show that you respect the audience
 - If you don't care for your presentation or the audience, how will you dress?
 - As every day!
- But do not be overdressed
 - Ask the dressing convention of your community/audience





Avoid Bad Surprises

- Make backup copies of your slides on two different supports
 - Don't put everything in a same luggage
- Make your slides available online
- Make copies in several versions
 - In addition to the latest version, for compatibility issues, use backups in older versions (for PowerPoint, it is usually 97-2003)
- Check that all copies are the last version of your presentation

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Avoid Bad Surprises

- Test your presentation
 - Go through all slides to see if everything is ok
 - Must check colors and animations

- Test the remote controller
 - Batteries

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- Sleep well and eat enough not to pass out
 - A small bottle of water might help





Avoid Bad Surprises

- If you use your laptop:
 - Restart it half an hour before your presentation
 - Stop all applications
 - Avoid popups
 - Stop WiFi
 - Avoid system update popups or reboot
 - Use a power cable
 - Deactivate sleep mode, screen saver





Some Facts on the Audience ©

- They want to be elsewhere:
 - Early in the morning: in their bed
 - Around noon: eating
 - Early in the afternoon: sleeping at the swimming pool
 - Late in the afternoon: dinner or social event
 - In the middle: waiting for the coffee break





Some Facts on the Audience

- They have already ingested boring presentations
- They are laptop addicts
 - They are reading their emails, browsing the web, reading online newspapers, chatting, etc.
 - Don't be demoralized!

You have to wake them up and catch their attention





Outline

- Why should you bother doing talks?
- How to structure your talk?
- How to make your slides?
- How to give your talk?
- Great talks examples





Some Wonderful Examples

- Technical talks
 - Scott Shenker: The Future of Networking, and the Past of Protocols,
 Open Networking Summit 2011
 - Try http://www.youtube.com/watch?v=YHeyuD89n1Y
 - Hans Rosling: Stats that reshape your worldview, TED 2006.
 - Try
 https://www.ted.com/talks/hans_rosling_the_best_stats_you_ve_ever_seen?lang_uage=en
- General talks (not scientific)
 - Randy Pausch Last Lecture: Achieving Your Childhood Dreams (in English)
 - How to communicate passion?
 - Try http://www.youtube.com/watch?v=ji5_MgicxSo





Some Wonderful Examples

- Watch talks on http://www.ted.com/
 - Extremely high quality standard
 - Elizabeth Gilbert on nurturing creativity
 - https://www.ted.com/talks/elizabeth_gilbert_your_elusive_creative_genius?language= en



