How to give a research talk

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This talk is partially based on
https://www.microsoft.com/en-us/research/academic-program/give-great-research-talk/
What is good research?

1. A (hard) problem
2. A (valid) solution
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2. A (valid) solution
3. But maybe nobody
   • cares about your problem
   • understands your solution
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Research is also communication
How to communicate?

- Write (and publish) papers
- Give talks
How to communicate?

* Write (and publish) papers
* Give talks

This (meta) talk is about giving talk!
Should you care?

- You care about what people think of your research area
- You care about what people think of your research activity
- You care about what people think about you
Why do you give a talk?

✶ To impress your audience with your brainpower?
✶ To tell them everything you know about your topic?
✶ To present all the technical details?
Why do you give a talk?

★ To impress your audience with your brainpower?
★ To tell them everything you know about your topic?
★ To present all the technical details?

None of the above!
Why do you give a talk?

✶ To give your audience an intuitive feel for your idea
✶ To make them want to read your paper
✶ To engage discussions and collaborations
✶ To make them glad they came
The audience your like

- Have read all your earlier papers
- Thoroughly understand all the relevant technical background
- They are eager to hear about your research
- Are fresh, alert, and ready for action
The audience you get

• Have never heard about you

• Have heard about some of you relevant technical background, but wish they hadn’t

• Have just had lunch and are ready for a doze
What to put in

1. Motivation (20%)
   - Why should they care?
   - Why is it a hard problem?

2. Background (20%)
   - What do they need to know before hearing your solution?

3. Your key idea (50%)
   - YOUR work

4. Conclusion (10%)
   - Take-away message
   - What’s next?
Motivation

✶ You have two minutes to engage your audience before they start to doze…

✶ Shortest path problem: how to explain the problem

✶ with as little time as possible

✶ while being understandable by everybody in the room?
Motivation: first slide

- The first slide gives the context of your problem
- Even better: the first slide gives the socio-economic problem of your problem
- Illustrations are particularly welcome here (and later too…)
- The « for my grandmother » slide
Motivation: next slides

★ Why it has not been solved before? (if you can explain it shortly…)

★ Why is it a hard problem?

★ Your are not describing your solution, but the problem to be solved

★ If possible, use an example!

★ Conclude with « your approach » (one line)
Background

1. Motivation (20%)
2. Background (20%)
3. Your key idea (50%)
4. Conclusion (10%)
Background

★ Do not mix background and contributions - NEVER
★ But maybe you can mix background and motivations
★ Time to be pedagogical
  ★ Even if people *should* know that, just imagine they forgot
  ★ Hard to find the balance
★ But people will sometimes only remember this part

« This was the best short-course about XXX I have ever heard »
Your key idea

1. Motivation (20%)
2. Background (20%)
3. Your key idea (50%)
4. Conclusion (10%)
Your key idea

◆ You, you, you

◆ Chose a synthetic, crystal clear contribution message

◆ Organise your talk around this specific goal

◆ Ruthlessly prune material that is irrelevant to this goal
How much technical content?

★ Too much will make your talk hard to grasp
  ★ it’s ok to cover only part of your paper
  ★ « each formula divides by 2 your audience »

★ A diagram is always useful
  ★ but more than 7 nodes is hard to understand
  ★ it requires time to be explained (animation can help here)

★ Plots need to be explained and interpreted
The technical *meat*

- A bit of meat is required
  - it’s ok if some people get lost here (10-20% of your talk)
- Avoid shallow overviews
- Give a multi-reader talk!
- Examples are your main weapon
  - if necessary, omit the the general case and explain only with an example
Examples

🌟 can motivate the work
🌟 can convey the basic intuition
🌟 can illustrate the key idea in action
🌟 can show extreme cases
🌟 can highlight shortcomings
Conclusion

Imagine (or foresee…) someone got sleepy during the previous slides, what should he remember from your talk?

- usually 3 synthetics points

Also add a Further Work slide

- usually 3 points, ordered by time of feasibility
- you must be able to answer questions about these research roads
Answer questions

- Asking question is not that easy: be nice
- Rephrase the question before answering
- Answer to the right question
- Prepare this sequence by thinking in advance about possible questions
More advices
Some of these advices are personal opinions

You have to adapt them

wrt. your personality

wrt. your talk experience
My very personal advices

★ A slide should be self-explained
★ Itemizes are boring
★ Bubbles help a lot
★ Beamer presentations are boring
★ Powerpoint presentations are ugly
★ Always use the same font (only one more for code and maths)

  ★ Comic Sans MS should be punished by law
★ No more than 3 font sizes in a same slide
★ Outlines are boring
Standard advices

⭐ Bibliographic references must follow BibTex formatting traditions

⭐ https://dblp.uni-trier.de

⭐ Example [ZCD’14]

⭐ Use colors

⭐ Don’t be too verbose

Observe

★ You must observe others to learn how to give research talks

★ Observe good talks
    ★ Attend research seminar in your lab

★ Observe bad talks
    ★ Master courses are not research talks!
    ★ Remember this seminar when you feel miserable?
Polishing

Build a good talk requires time

- specially the first talks
- a 20min talk requires one full week of work
- no typos allowed!
Preparing

★ Think first about content, not visual effects

★ But select/order your content by thinking about the visual element you can get

★ Brainstorming

★ use a mini-diapo view to measure proportions

★ For a X min talk, prepare X slides (approx.)
Rehearse

- You need feedback (again and again)
- You need to know by heart the most important parts
  - specially the first 3 slides (be punchy, get to the point)
Your attitude

* Research is about passion
  * Be enthusiastic

* Research is about transmitting knowledge
  * Don’t be arrogant

* Look at your audience

* Never apologize
Checklist

★ Will people remember your key approach?
★ Will people differentiate your contribution from the background?
★ Will people feel good?
★ Did you test the good laptop with the good projector?
  ★ Did you bring your pdf on an usb key?
  ★ Did you put a copy on the web?
★ Did you test this visioconference system?
Research is communication

Your papers and talks

- **Crystalise** your ideas
- **Communicate** them to others
- **Get** feedback
- **Build** relationships
★ 15 minutes talk about your bibliographic study
★ Respect the schedule
★ Show you have read papers
★ Show you have understood papers
★ Show you can explain papers
★ Conclusion #1 : my internship goal is…
★ Conclusion #2 : first steps will be…
★ Rehearse, get feedback, rehearse, get feedback
Soutenances

http://master.irisa.fr/internship/

★ 20 minutes talk about your work

★ The committee want to clearly see the frontier between the background and your work

★ You may not have finished everything in your internship yet, and that’s not a problem

★ The committee is not expert but they want to be convinced you are closed to become one!