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 you're 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

★ 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 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

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

- 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
✱ The « plan of my talk » is 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

🌟 Building 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 proportion

* 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!