How to Present a Paper in Theoretical Computer Science: A Speaker's Guide for Students

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Motivation

While **research excellence** is the main criterion for success as a theoretical computer scientist ...



Motivation

... a **competent** speaker will more likely be invited to give colloquia at leading universities and invited talks at important conferences than a mediocre one.



Main Index

- 1. <u>What to say and How to say It:</u> A well structured material is the first step towards a great presentation.
- 2. <u>Getting Through to the Audience:</u> What to do when you are actually standing in front of the crowd.
- 3. Visual and Aural Aids: The projector and the microphone.
- 4. **Question Time:** How to handle audience questions ... even the harshest ones.

What to Say and How to Say It - Generals

- **Communicate the key ideas:** Make sure that your talk emphasizes the key ideas and skips over what is standard.
- **Don't get Bogged Down in Details:** Things that you take for granted will have to be explained carefully, however, a good talk motivates the listener into reading the paper.
- **Structure your Talk:** A well-structured talk is easier to understand than a rambling and unstructured one.
- **Be prepared, but also a bit loose:** Don't prepare every detail, it's ok to improvise a bit.

What to Say and How to Say It - Introduction

- **Define the Problem:** Take your time to explain the main problem, this is time well invested.
- Motivate the Audience: Explain why the problem is so important.
- Introduce Terminology: Introduce the minimum amount of terminology in an early phase.
- **Discuss Earlier Work:** Present an orderly synopsis of previous works, compare and contrast them with your paper.

What to Say and How to Say It - Introduction

- Emphasize the Contributions of your Paper: State, in a very succinctly way, your paper's contributions, the audience wants to know this.
- **Provide a Road-map:** Give the audience a brief guide to the rest of the talk, along with a short description of what will be in each section.

What to Say and How to Say It - Body

- Abstract the Major Results: Describe the key results of the paper, but do so gradually and carefully.
- **Explain the Significance of the Results:** Explain the relationships between the formal concepts you just presented with the informal description you gave in the introduction.
- Sketch the Crucial Results: In a very high level explain the methodology implemented and how it led to the results you obtained.

What to Say and How to Say It - Technicalities

Time to give some technical details, this will help the non-experts to see what is really going on behind scenes.

- **Present a Key Result:** It should be important, non-trivial, should give the flavour of the rest of the technical results.
- **Present it Carefully:** Be as succinct and clear as possible, you should also try to give the audience something that they could not get by staying home and reading the paper.
- Less is more: Avoid complex mathematical expressions if possible, instead focus on the intuition behind the formal result.

What to Say and How to Say It - Conclusion

- **Hindsight is Clearer than Foresight:** Use this opportunity to refer to statements made earlier and weave them into a synopsis, leave the non-experts feeling that they have learned something.
- **Give Open Problems:** End the talk by mentioning weaknesses of your paper and potential future work.
- Plenty of work to do: Don't apologize for incomplete results, researchers understand that all research continues.
- Indicate that your talk is over

What to Say and How to Say It - The Audience



- Use Repetition: It's all about <u>repetition</u>, don't be scared to use it.
 - Intro: Tell them what you are going to tell them
 - Body & Tech: Tell them
 - <u>Conclusion</u>: Tell them what you just told them
- **Remind, don't Assume:** Remind standard knowledge to your audience, it is worthwhile.
- Don't Over-run: Plan to finish 5 min. before your given time, and leave 5 min.
 for question-time.



- Maintain Eye Contact: Spread your attention throughout the audience.
- **Control your voice:** Speak clear and with sufficient volume, use a multitone (go up and down).
- **Control your Motion:** Use natural gestures, avoid getting between the projector and the screen.
- Take Care with your Appearance: Good grooming and dress helps, but avoid appearing overly ostentatious.





• **Minimize Language Difficulties:** If the talk must be delivered in a language you are not fluent with, it's a good idea to get a native speaker to check you practice before the talk.

• Try Not to get Anxious:

- Look over your slides 10-15 min. before
- Practice before with some colleagues or advisor
- Don't pay too much attention to the reactions of the most important person in the hall
- It's all about experience

• Don't Overload Slides:

- Write down definitions, important points, keywords and phrases.
- Slides should be used for emphasis, to resolve ambiguity, for precision.
- A good slide underlines the key points for the audience and simultaneously acts as notes for the speaker.

Giving a good presentation conti

- Keep text to a minimum. No more than 5 bullet points per slide and if you can kee core idea—that's better. People will tend to read this stuff and not pay attention to saying.
- Check the contrast and font size. Make sure that if you have text on the screen that peopresad it.
- Use pictures to get your idea across. They re easier to remember, less distracting and make more
 impact. Have stories ready and use imagery to set the backdrop.
- Avoid complicated charts and graphs, they're hard for your audience to follow. Keep visual ideas very simple.
- Check the resolution of your presentation. Maybe go with 800×600 to be safe. I don't know how
 many times I've seen slides that don't fit on the screen. You never know for sure how it's going to
 work out when you get things set up if you don't have full control over the environment.
- Have simple to follow notes to go along with your slides and major talking points. They should serve as a reminder, not something for you to read from.
- Think positive.
- Tell stories. Stories will get your idea across much better than charts and graphs and numbers. They also have the added benefit of helping to engage your audience.
- Don't read your slides. They should support what you are saying, not be what you are saying. The same goes for your notes.
- Keep your intro short and strong. People want to know who you are, but they also want to get into the meat of your tak. A quick, solid and clear intro is better than a meandering joke or list of accomplishments any day. Changes are most people in the audience know a bit about you already.

- Don't Use Too Many Slides:
 - This indicates that your talk contains too much material.
 - If you change slides too often, the audience will not have time to digest each properly.
 - In average, 1.5 to 2 minutes allow to the audience read each slide, as a rule of thumb, you should have no more slides than the minutes allowed.

• Use Colour Effectively:

- At all costs avoid the temptation to produce a rainbow of text.
- Some colors are more visible than others.
- Yellow is almost always invisible.

• Use Pictures and Tables:

- Remember "A picture is worth a thousand words".
- Be sure to explain the significance of your diagrams and tables.
- *"Our results look like this"* is not sufficient explanation.

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- ARIAL > **GUT Style** : Stick to a simple font... PLEASE!!!
- Beware of the Microphone:
 - You will probably need to use a microphone during a conference presentation.

• Sometimes the microphone is attached to the amplifier by a short wire.

• if you are unlucky, it is possible that you drop microphone, and everyone will listen unpleasant impact noise heard over the speaker.

- You can expect to receive three types of question:
 - The first is the genuine request for knowledge, which should cause you no difficulties if you are adequately prepared.

- The second is the **selfish question**.
 - The questioner wishes to draw attention to him or herself.
 - It is politic to take a few seconds to compose a reply that directly or indirectly compliments the questioner.



• The third is the **malicious question**.

 The questioner attempts to expose the speaker as a charlatan and a dissembler.



Two possible motives:

• Unfortunately, there are many people in our community who constantly seek to build up their reputation by tearing other people down.

• if you are interviewing for a job, the question may be intended to see how you react to criticism under pressure

- Either way, expect to have your ego bruised occasionally.
- Maybe You will be listen phrases about your work like "boring", "irrelevant", the problem is "well-known" or the solution is "a minor twist to an old technique".
- You need to be prepared, be polite, and avoid getting involved in a discussion. offer to take them off-line, since a one-on-one discussion is likely to be less difficult than a public one.





Do not be afraid to answer "**I don't know**" to some questions.

Don't confuse "I don't know" with "It is not known".

• Only say "It is not known" when you are sure that the questions is open.

■ If you have to say "I don't know", say it with assurance.

Don't be afraid to approach your questioner after the talk. You might learn something.

References

• DiCarlo, J. & Kanwisher, N. (2005). How to give a paper presentation. Retrieved

from:<u>https://ocw.mit.edu/courses/brain-and-cognitive-sciences/9-916-the-neura</u> <u>I-basis-of-visual-object-recognition-in-monkeys-and-humans-spring-2005/assig</u> <u>nments/how_to_pres_pap.pdf</u>

- Robledo, J.R. (2015). Tips for writing and presenting scientific papers. Retrieved from:<u>http://www4.rz.rub.de:8413/mam/content/appliedmicro/guidelines-micro.p</u> <u>df</u>
- Parberry, I. (2000). How to present a paper in theoretical computer science: a speaker's guide for students. *Sigact News, 31*(1), 77-86.

References

- Miller, T. (2013). Tips for Successful Academic Paper Presentations. Retrieved from: <u>https://graddiv.ucsc.edu/about/blogs/grad-deans-blog/11-2013.1.html</u>
- Central Eurasian Studies Society. (2014). Guidelines and Paper Writing and Presentation. Retrieved from: <u>http://www.centraleurasia.org/conf-guidelines-3</u>

PRESENTATION FINISHED

ANY QUESTIONSP