How to give a good presentation

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Some parts of this presentation are adapted from Thomas Brox’s slides, with permission.
Good scientific behavior

1. **Never present other people’s work as your own**
   - Never copy-paste
     (even critical when copying from your own work → self-plagiarism)
   - Clearly mention the material you used for your work
     (e.g. code, data, papers; if unpublished material, ask before you use it)
   - State explicitly what is your contribution

2. **Never report false scientific results**
   - Do not fake data to get the results you want (of course!)
   - Avoid situations that could easily lead to false results
     - Document what you did
     - Make sure comparisons are fair
     - Double check for mistakes (particularly when results are surprisingly good)

   - This holds for this seminar, but also for reports, theses, papers, grant proposals, interviews, personal communication
Examples of how to cite others’ work

• Quotes from other work should have quotation marks:
  – *X and Y [12] define this problem as follows: “…*"

• Provide references for figures

• Mention & clarify contributions from others:
  – *The results reported in this section are based on a joint project with X. While he had the main idea and wrote all the code, I was responsible for the experiments.*

  *For our implementation, we built upon the source code provided by X [13].*
Consequences of bad scientific behavior

• If you cheat in an exam, it will be marked as “failed”

• In severe cases, you can get exmatriculated!

• You can get sued for copyright violations

• You can lose your academic degrees even years after your misbehavior

• You can lose the right to submit grant proposals

• You can lose your job

Never cheat or plagiarize on purpose, clearly mark your references, adopt best practices for avoiding mistakes
Communication is hard work.

The work can be done either on the side of the **sender** or on the side of the **receiver**.
Importance of good presentation skills

• You’ll have to give a lot of presentations in your life (both in academia and industry)

• These presentations can decide whether
  – You get a job
  – Your favourite project gets funded
  – You get the resources you need
  – ...

• Presentation skills and communication skills go together
  – Improving one will help with the other
Getting your points across

• What matters is what your audience gets (not which points you “covered”)
  – Often, the audience is not as interested in the topic as you
  – You’ll have to tell them why they should be care
  – If nobody cares or understands it’s typically your own fault

• At least the key points must get across to everyone
  – Some details may only be for experts, that’s OK
Rule #1: Structure is key

• High level to low level to high level
  – Catch your audience’s attention
  – Then tell them what you’ll tell them and why they should care (priming)
  – Then tell it to them
  – Then tell them what you just told them

• Make transitions clear, don’t forget the “meta-talk”
  – E.g., “In order to explain X, first I’ll need to explain Y”
  – E.g., “Now that we’ve seen X and Y, we have the ingredients to do Z”
  – Remind the audience where you are in the talk, e.g. using a re-occurring outline slide
  – Use meaningful titles

• Don’t get lost in details
  – In case of doubt leave out some details
  – To scientists, some detail is often important; you can use a “T-structure”: combine broad coverage of a topic with depth about one aspect
Rule #2: present in pictures

• Slides full of text are hard to follow
  – The audience will read and not listen to you
  – Reduce text, use more images
  – Use animation sparsely, to guide attention

Method of Choice: Bayesian Optimization

• Prominent approach to optimize expensive blackbox functions [Mockus et al., ’78]

• Approach
  – Observe a few function evaluations
  – Construct a probabilistic model of the objective function, for example a Gaussian process
  – Use that model to compute a so-called acquisition function that quantifies how useful a new data point is, trading off exploitation of areas predicted to be good and exploration of areas where the model is uncertain
  – Use the acquisition function to select the next point to evaluate the function at
  – Evaluate the function there, refit the model, and iterate

• Efficient in the number of function evaluations
• Works when objective is nonconvex, noisy, has unknown derivatives, etc
• Recent convergence results [Srinivas et al, ’10; Bull ’11; de Freitas, Smola, Zoghi, ’12]
Rule #3: Have readable slides

• Can you read this text?

• Also from the back? Remember, the contrast and resolution of your laptop is usually much better than that of the projector.

  • Sometimes the font size is too tiny

• Sans-serif fonts are easier to read from the back than serif-fonts

Also still quite common is yellow text on white ground.

You see this even more often in graphs.

Make sure there are no typos in your slides; it’s so unprofessional and unnecessary.

Size up figures to use most of the slide. A slide does not need a big frame.
Rule #4: Practice

• Prepare what you want to say, **do not improvise!**
  – Have a **time budget** for each part
  – Write down bullet points of what you want to say in each part
    • Say it out loud a few times & check the timing for the part
    • Then do the part a few times without looking at your notes
  – Write out exactly what you want to say in the first minute and as a closing statement
    • You are most nervous in the beginning
    • You want to end pointedly (also, with a final “Thank you”)
    • Practice first minute and closing statement at least 10 times

• Then put it all together
  – Do the transitions work?
  – Always get stuck at the same point? Change that point!
  – Don’t speak too fast! Speaking too slowly is almost impossible
Rule #5: control your technical equipment

• Prepare and test your equipment before the talk (if possible)

• **Checklist:**
  – Does your laptop work with the projector?
  – For Mac-Users: do you have the right dongle?
  – Do all videos show properly?
  – Internet connection switched off?
  – Screen saver switched off?
  – Desktop free of too personal items?
  – Enough battery or laptop plugged in?

• Use laser pointer for directing attention
Rule #6: Behave naturally

• Keep **eye contact** with the audience; don’t turn your back
  – But do **not** wonder what they might think of your presentation!
    (now it’s too late)

• **Relax**
  – Breathing in & out deeply once can help
  – Practice helps building confidence

• **Answering questions:**
  – First listen to the whole question carefully; don’t interrupt
  – Long/multiple questions: take bullet point notes
  – Think about how you can best answer a question before you answer it
  – Give short and precise answers
Rule #7: Adapt your talk to your audience

• The paper you are presenting is written for a specialized research community

• But your audience has a different background
  – You will need to cover the necessary background
  – We’ll be experts on some topics – don’t bore us with what we already know

• For other presentations
  – A talk to the CEO is completely different than one to the tech support group
  – A talk applying method X to problem Y is completely different when you’re talking to community studying X or Y
Rule #8: Learn from the mistakes of others

• You cannot follow someone’s talk?
• You are totally bored?
• You are irritated by a certain behavior of the presenter?

→ Analyze what the presenter is doing wrong
→ Make sure to give them (friendly & constructive) feedback and do not make the same mistakes
Giving constructive feedback

• Start with something positive
  – In your own reviews you don’t want to hear only negative things, either
  – People are more receptive to criticism after hearing something positive

• Make concrete suggestions
  – Bad example: “The lecture was bad”
  – Good example: “I couldn’t follow the math because I couldn’t read your handwriting on the board – better use a projector or slides”