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      (e.g. code, data, papers; if unpublished material, ask before you use it)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
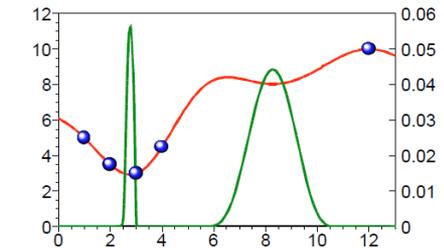
Source: Jones et al [1998]

- 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

How to give a good presentation

Communication is hard work.

The work can be done either on the side of the <u>sender</u> or on the side of the <u>receiver</u>.

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]

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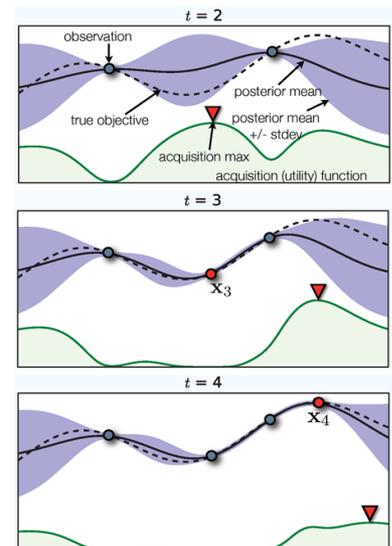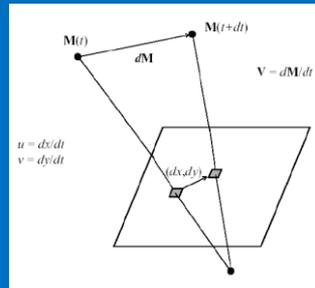
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Rule #3: Have readable slides

- 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

Meke sure tere are no typos in yur slides; it's so unprofessional und 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 <u>not</u> 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"