Seminar
Current Works in Computer Vision

Blockseminar
Deep Learning for Biomedical Image Analysis

About this seminar
Paper assignments
How to give a good presentation
Good scientific behavior
About this course

• What do you learn in this course? (worth 4 ECTS)
  – Reading and understanding current research papers
  – Exploring the literature
  – Giving a good oral presentation
  – Asking questions
  – Discussing a research work or a research problem
  – Latest stuff on computer vision and deep learning

• Requirements:
  – First experience in giving a presentation (e.g. Proseminar)
  – Recommended: at least one related course (e.g. Kursvorlesung)
  – Scientific interest in the field

• Your duties:
  1. Read all the presented research papers and answer some questions
  2. Dig into one particular research paper and present it in the class
  3. Take part in a lively discussion about each paper
1. Written summary of each paper

• Goal: make sure that everyone has read the paper

• We will ask some general questions about the paper

• You give some concise answers in a written summary

• Length: less than half a page

• Must be sent to the advisor responsible for this paper at least one day before the talk

• Bad summaries will be rejected

• 20% missing/late summaries or rejections at maximum or you won’t pass
2. The paper you present

- Choose one paper that you will present

- Read this paper **and understand it**

- Usually requires reading (or cross-reading) several other papers

- All papers are very recent research papers
  → they assume that you know the background
  → you are responsible for finding additional information

- Prepare the outline of your talk as a written document (~2 pages)
  - What you will present and in which order
  - Make sure you present the background as well!
  - What tools could be beneficial to make your audience understand better (images, videos, demos)
  - Document must be submitted **at least 2 weeks before your presentation**
  - Meeting with your advisor
2. The paper you present (continued)

- Prepare the slides of your talk
  - Fill your developed structure with actual slides
  - Make sure your talk will be comprehensible
  - Make sure you understand what you are talking about (otherwise skip details)
  - Prepare some text what you will say in each slide
  - Make sure you will stay within the time limit (35-40 minutes)
  - Submit your slides **at least one week before your talk**
  - Meeting with your advisor

- Make changes to your slides (as discussed with your advisor)

- Practice your talk (important!)

- Present

- Submit your final slides and get feedback from your advisor

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3. Discussion

- We want a nice scientific discussion about each paper

→ Requires active participation, not just listening

- What’s to be discussed (examples):
  - What is still unclear? (might not be the fault of the presenter but the paper)
  - What are the highlights of the paper?
  - What are (possibly hidden) shortcomings of the approach?
  - Are there better alternatives?
  - Which successive work could make sense?
Paper assignment

1. Maximum 8 places for the seminar within the semester

2. 7 places for the blockseminar (up to 3 more places could be offered)

- Be fair: only take a paper if you really take the course!
- Fill in your preferences
- Presentation dates will be fixed after we assigned the papers
- Blockseminar will be after the lecturing period

Questions about the seminars?
Communication is hard work.

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

• Why it is important:
  – You will have to present all the time in the future (academia and industry)
  – Quality of your presentation decisive for achieving your goals:
    • Can I convince them to fund my favorite project
    • …to give me the additional resources I need
    • …to build upon my scientific work
    • …to give me the job

• What is important:
  – The key message(s) should be transported to everybody
  – Your audience must understand!
  – Your arguments should be convincing

• How do we achieve this…
Rule number 1: have a good structure

- Never lose the audience
  → Present coarse-to-fine

- First the background and the main message must be clear
  - What is the problem?
  - What is the key idea?
  - What is the difference to previous works?

- Go only into detail step by step

- Have a clear thread
  - Transitions are critical: will the audience be able to follow your thoughts?
  - If there are natural breaks, clearly mark them as such
  - Don’t forget a concise conclusion/summary; end with “Thank you”

- Choose meaningful titles on all your slides
Rule number 2: present in pictures

- Slides with a lot of text are hard to follow
- Try to remove as much text as possible, use images and examples instead

<table>
<thead>
<tr>
<th>Ambiguities resolved by context</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Ambiguities appear because the resolution in images is not good enough to distinguish small objects.</td>
</tr>
<tr>
<td>- To resolve ambiguities, the context in an image is very important.</td>
</tr>
<tr>
<td>- The context can increase the probability that the structure is indeed a certain object.</td>
</tr>
<tr>
<td>- This can of course be wrong, but by optimizing the global context of all structures in a scene, the overall scene interpretation is usually correct.</td>
</tr>
<tr>
<td>- It is much better than independent decisions purely based on the insufficient data.</td>
</tr>
<tr>
<td>- This should not be confused with replacing the data by prior assumptions if there is enough data to do the job.</td>
</tr>
</tbody>
</table>
Rule number 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 the whole area of the slide. A slide does not need a frame.
Rule number 4: practice

- Prepare the text that you want to say, do not try to improvise!

- Speak your talk **loudly** without reading your prepared text (multiple times)

- Always getting stuck at the same point? → change this point

- Watch your timing
  - Slowly read the text you prepared (loudly) → good estimate of your timing
  - Practice until you stay within your time limit

- Control your voice
  - Do not speak too fast
  - Emphasize words or parts of sentences with your voice
  - Speak loud enough
  - Use silence to emphasize things
Rule number 5: control your technical equipment

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

• Checklist:
  – Does your laptop work properly with the projector?
  – Do you have the right adapter?
  – Do all videos show properly?
  – Internet connection switched off?
  – Desktop free of too personal items?
  – Enough battery or laptop plugged in?

• Proper use of a laser pointer

"For God's sake, Edwards. Put the laser pointer away."
Rule number 6: stand open towards the audience

• Keep eye contact with your audience; don’t turn your back

• But do **not** wonder what they might think of your presentation! (now it’s too late)

• Breathe normally

• Answering questions:
  – First listen to the whole question carefully; don’t interrupt
  – Think about how you can best answer this question before you answer it
  – Give short and precise answers
Rule number 7: 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 you do not make the same mistakes

Questions about presenting?
Good scientific behavior

1. Never present other people’s work as your own
   – Never copy-paste
     (can be critical even when copying from your own work \(\rightarrow\) self-plagiarism)
   – Cite the original author whenever one could think it was your work
     (e.g. illustrations, ideas, code)
   – Clearly mention the material you used for your work
     (e.g. code, data, papers; if unpublished material, ask before you use it)
   – Say 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 if there is a mistake particularly when results are surprisingly good

• This holds for this seminar, but also for reports, theses, papers, grant proposals, interviews, personal communication
• If you quote from some other work, use quotation marks:

In their original work [12], Wang and Adelson say:  
“It may ultimately be possible to encode images using “high-level” machine vision concepts such as 3-D object recognition, but it will be many years before such techniques can be applied to arbitrary images.”

• Mention other people who contributed to your thesis and clarify who contributed what:

The results reported in this section have been obtained in a joint project with Jochen Talberg. While he had the main idea and wrote all the code, I was responsible for the robotics experiments.

In our implementation we built upon the source code provided by Werlberger et al. [13].
Consequences of bad scientific behavior

• If you cheat as a student, your exam 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 and your reputation

⇒ Never cheat on purpose and avoid mistakes or misinterpretations