Seminar
Current Works in Computer Vision

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 in computer vision (particularly deep learning)

• Requirements:
  – First experience in giving a presentation (e.g. Proseminar)
  – Recommended: at least one image processing 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. Your particular paper

• 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 current research papers from last conferences
  → 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. Your particular paper (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 (really!)

• Present

• Submit your final slides and get feedback from your advisor
3. Discussion

• This seminar is designed to be scientifically interesting
  – Selected papers that have been published within the last few months
  – Open discussion about the paper

• What’s to be discussed (examples):
  – What is still unclear? (might not be the fault of the presenter but the paper)
  – Is this paper a valuable contribution? Why? Why not?
  – What are the shortcomings of the approach?
  – Which successive work could make sense?
Available papers

1. 3D model reconstruction from single images
2. 3D up-convolutional networks
3. Data dependent network initialization
4. Efficient ConvNet architectures
5. Deep reinforcement learning
6. Unsupervised feature learning
7. Video prediction
8. Dataset for object and action recognition

• Be fair: only take a paper if you really take the course!
• Fill in your preferences
• Additional blockseminar by Prof. Ronneberger
• Presentation dates will be fixed after we assigned the papers
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

- Present coarse-to-fine

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

- Go only into detail step by step

- Never lose the audience

- 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 instead
- Have many examples

<table>
<thead>
<tr>
<th>Image Processing</th>
<th>Ambiguities resolved by context</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ambiguities appear because the resolution in images is not good enough to distinguish small objects.</td>
</tr>
<tr>
<td></td>
<td>To resolve ambiguities, the context in an image is very important.</td>
</tr>
<tr>
<td></td>
<td>The context can increase the probability that the structure is indeed a certain object.</td>
</tr>
<tr>
<td></td>
<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></td>
<td>It is much better than independent decisions purely based on the insufficient data.</td>
</tr>
<tr>
<td></td>
<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

Mak sure their are no typos in you slides; it’s so unprofessional und 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?

- Do not use the laser pointer as a weapon

*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
- Be authentic
- 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
Good scientific behavior

1. Never present other people’s work as your own
   – Never copy-paste
     (even critical 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 any mistakes or misinterpretations