Seminar
Current Works in Computer Vision

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

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. Semantic segmentation
2. Recurrent network for detection
3. Camera relocalization
4. Video prediction
5. Recurrent networks for human dynamics
6. View prediction
7. Instance segmentation
8. Joker paper

• 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
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>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 (exception: microphones)
  - 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 → 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