Student in this seminar should be those interested in high level, learning based, computer vision. They are expected to prepare their lectures carefully, help each other, and ask questions.

To complete the seminar, the student should give one lectures (60 pts each), help at least once to another student in the preparation of the lecture (10 pts), be in class and participate in the discussion (10 pts), and prepare a review of one additional paper (20 pts).

A list of topics and papers.
The papers given here are suggestions for important papers on the topic. They are also good starting points for the paper selection.

1. (Tom and Yuri) Commonly used image classification CNNs (double)

3. (Nirit) Network Visualization

4. (Dan) Proposals


5. (David and Yael A.) **Detection (double)**


7. (Nadav) **Optimization for deep Neural Networks**

8. (Oran) **Segmentation**


9. **Edge Detection**


10. (Yehuda) **Image processing with deep networks, including Super-resolution and Compression**

11. (Vladimir) **3D reconstruction from 2D**


12. (Gilad, Yohai) **Generative adversarial Networks (double)**


13. (Yevgeny) **Unsupervised training II**


14. (Yonathan) **Caption generation**

(a) Kelvin Xu, Jimmy Ba, Ryan Kiros, Kyunghyun Cho, Aaron C Courville, Ruslan Salakhutdinov, Richard S Zemel, and Yoshua Bengio. Show, attend and tell: Neural image caption generation with visual attention. In *ICML*, volume 14, pages 77–81, 2015 (Attention, RNN)

15. (Yael Y.) **3D point cloud and graph analysis**


16. (Itamar) **Not assigned yet**

**Misc - not for lectures**


How to give a good lecture: Start with the given paper and search for other papers that look important. Understand the goals and the main ideas. Confirm the choice of the papers with me. Choose 2+ papers and understand them well. Prepare your lecture and slides carefully, making sure that everybody will understand it. Focus on the following issues: What problem does the paper solve? What were the previous methods and why they are not good enough? What are the main principles? (try to identify and isolate 1-2-3 main ideas), What is important about the implementation? What are the limitations of the solution? Show typical results. Do not overload the lecture with details but do not omit important ones. Do not write anything that you cannot explain on the slides. Give the lecture before your partner at least a week before you give it in class.

How to write a reviews - The paper (one) you select should be one that was not given in class yet. Refer to the same questions addressed in a lecture. One page is enough.