

## Final Project

**Project due on 5.3.2018. Presentations (mandatory) on Monday, 19.2.2018 at 14:30, Fishbach 504 (changes will be announced by mail).**

### General

- Goal: the final project is a main milestone in the course. It is designed to evaluate the student's ability to conduct a complete research task related to the course on a small scale.
- The work can be done in pairs.
- Selecting the project: each group (single student or pair) will coordinate with the TA, Tal Feld, their requested project. Only one group per paper (on the basis of first come, first served).
- The submission involves "mid-term" presentation in class and submission of a final report and code.

### Presentation

A short presentation will be given of about 10 slides (10-15 minutes talk). On the slides you should give background on your project, explain the model, analyze it and put emphasis on your creative part. Not everything should be finalized at this stage.

### Project Report

The report will be **up to 20 pages** (somewhere between 10-20 pages is reasonable). Where applicable (depending on the project), here are some topics that should be covered:

- *Background.* Describe the problem and some previous suggested solutions.
- *Suggested model.* Why the model was chosen? include both the authors views and your views.
- *Single problem.* If the paper suggests many models or variations - select one of them and investigate this model thoroughly.
- *Implementation.* Implement the selected single problem - either by the implementation suggested in the paper or using your own method (if the numerical part is not a critical aspect of the paper).
- *Analysis.* Analyze the paper (the selected problem), use at least 4 test images. Try various parameters, check robustness to noise. If you know of a simple naive solution to the problem - compare the two solutions.
- *Creative and suggested Improvements.* Suggest an improvement to the model. Following your analysis, see where the model fails, or is less accurate and try to correct it. This is an important part of the project where you can show creativity and abilities to perform research. Illustrate your solution with examples showing:
  1. Your solution is at least slightly better than the original paper on some images.
  2. Your solution does not degrade the performance on other images (such as the ones shown on the analysis part).
- *Conclusion.* Summarize the goal, your analysis and suggested improvement.
- *References.* Bibliography cited within the report.

## Grading

1. Presentation - **10 points**.
2. Report and code - **90 points**:
  - (a) Analysis and implementation of the paper - **50 points**.
  - (b) Creative parts and suggested improvements - **40 points**,

## Submission

Please send a PDF file containing the report and the Matlab files folder to **Tal Feld, stmfeld@gmail.com**. The subject of the mail should be "**Final Project**". In the mail please write the full names + ID of the participants

## Papers

The suggested papers appear on the course website.

There is a possibility to work on other papers, please contact the lecturer, Guy Gilboa, discuss it with him and get an approval.