Statistical Methods in Image Processing 048954

Final Project

General

1. Goal: Utilizing the concepts and tools learned in class for analyzing, implementing and modifying an algorithm from the recent literature.
2. The project includes giving a mid-term presentation, and submitting the presentation, a final report and code.
3. The work is individual.

Selecting the project

1. Choose a paper/topic from the list below
   - Papers not in the list are also possible, as long as they are related to the course material. If you want a paper not in the list, you should confirm it first.
   - If you have an idea for a project that is not directly related to any specific paper, please confirm it first.
2. Confirm your choice (by email), and set a meeting to discuss what you intend to extend in the paper.

Mid-Presentations

A short 12 minutes talk (~12 slides), including mainly background and analysis of the paper, and an introduction to your creative part (including preliminary results).

Project report

The report will include:

- Brief relevant background
- Brief summary of the chosen paper(s)
- Focus on the creative extension: Propose and implement improvements / modifications, including implementation and results
- Conclusion
- References (cited within the report)

The report should be confined to 10 pages. You are welcome to consult about any question you may have regarding the choice of the paper and your suggested extension.

Final Project Grade

30% Presentation

70% Report – 35% Understanding and analyzing the paper you chose

35% Creative part (derivation, implementation, and results)

Dates

Choosing a paper and confirming the extension – by the end of the semester

Presentations day – 25.6

Project submission – 25.8

List of Projects/Papers

- Photo-realistic super-resolution using Shift-map image editing (contact me for details)
- Photo-realistic denoising using Gibbs sampling and cross-scale patch recurrence (contact me for details)
- Deep image prior
- "Zero-shot" super-resolution using deep internal learning
- Discriminative transfer learning for general image restoration
- Deep mean-shift priors for image restoration
- A Content aware image prior
- Multi-scale patch-based image restoration