Schedule VIP-2021 v. 1/12

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| **week** | **dato** |  | **Title/Contents** | **Exercises** | **Material** |
| 1a | 22/11 | SIO | Introduction | Ex1: Math | FP 1.1 |
| 1b | 24/11 | FL | Linear Algebra revisited |  | Lin.Alg. Tutorial |
| 2a | 29/11 | FL | Filtering, convolutions, Derivatives, Gradients | Ex2: Filtering | FP 4.1-2 |
| 2b | 1/12 | FL | Features, Interest points, Scale-Space |  | FP 4.7, 5.1-3 |
| 3a | 6/12 | FL | Descriptors, Feature point matching |  | FP 5.4, 4.6; Lowe; FP 6.2 |
| 3b | 8/12 | FL | Image formation, specularities, surface reflection | Ex2: Photometric stereo | FP 2.1-2.2; Woodham |
| 4a | 13/12 | FL | Photometric stereo |  | FP 2.2; Woodham |
| 4b | 15/12 | SIO | CBIR using BOW |  | FP 6.2, Lowe, FP 21.1, 21.2.1 |
| 5a | 20/12 | SIO | Camera models, Homogeneous coordinates, Transformations, Homographies | Ex3: CBIR | FP 1 + 7.-7.1, 12.1 (mainly 12.1.3) |
| 6a | 3/1 | SIO | Stereo, lass evaluation, Questions |  | DerWalt: Correspondence problem |
| 6b | 5/1 | SIO | Color image analysis, shadows |  | FP 3 |
| 7a | 10/1 | FL | Segmentation: Clustering |  | FP 6.2, FP 9.-; 9.3.2-3 |
| 7b | 12/1 | FL | Segmentation: Mean Shift | Ex4: Segmentation | FP 9.3.4-5 |
| 8a | 17/1 | SIO | Convolutional Neural Nets |  | Ponti, Slides |
| 8b | 19/1 | SIO | Convolutional Neural Nets, Class evaluation |  | Ponti, Slides |

**Lectures and exercises**

* Monday 15:15-17:00, lectures, Auditorium Lille UP1, DIKU, Universitetsparken 1
* Wednesday 10:15-12:00, lectures Auditorium Lille UP1, DIKU, Universitetsparken 1
* Wednesday 13:15-15:00, exercises, NBI 01 (Team1: 3.I 164, Team2: 3.H 142, Ream 3: 3.I 080), Jagtvej 155

**Teachers:**  
Søren I. Olsen, SIO

Francois Lauze, FL

TA1: Seyednavid Mohammadifoumani; TA2: Steffen Czolbe; TA3: Peidi Xu

**Reading material:**

*D. Forsyth and J. Ponce: Computer Vision - A Modern approach, Pearson, 2ed, 2012*.

Additional we will use scientific papers and tutorials, all available at Absalon.

**Mandatory assignments:**

Ex1: 22.11 – 29.11 Math - FL

Ex2: 29.11 – 8.12 Filtering - SIO

Ex3: 8.12 – 17.12 Photometric stereo - FL

Ex4: 15.12 – 12.1 CBIR- SIO

Ex5: 12.1 – 21.1 Segmentation- FL

To this comes weekly non-mandatory quizzes taken at Absalon.