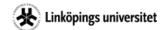
#### **Datorseende (CVL)**





# Introductory Course on Spectral Clustering

### Course schedule

The course is given in the second half of the spring semester (VT2).

The dates are

Tuesday 22/5/2012, 15-17

Thursday 24/5/2012, 10-12

Tuesday 29/5/2012, 15-17

All lectures are given in seminar room Signalen at the Department of Electrical Engineering.

### Preliminary lecture plan

- Lecture 1: An overview of the clustering problem, graph theory and segmentation, introduction to concepts in spectral clustering [Lecture slides]
- Lecture 2: Algorithms for spectral clustering, A , D and L and their eigensystems [Lecture slides]
- Lecture 3: Extensions: multi-way affinities, multiple cues + competing methods, enhancing SC [ Lecture slides ]

#### **Exercises**

Students can propose their own problems to work on, but example problems/data to work on will also be available. For those who wish to use our example problems and data you can download them **here** . Instructions **here** .

Results of the exercises will probably be presented at a seminar Preliminary, the course gives 3hp credits (=2 weeks full time work)

# Literature

- Ulrike von Luxburg, A tutorial on spectral clustering, Stat Comput (2007) 17:395-416
- 🗾 Ulrike von Luxburg , A tutorial on spectral clustering , Technical Report No TR-149, Max-Planck Institute for Bilogical Cybernetics, 2007 (A longer version of the journal paper)
- Shi & Malik, Normalized cuts and image segmentation, PAMI 22(8), 888-905, 2000
- 💶 Ng, Jordan & Weiss, On spectral clustering: analysis and an algorithm , in "Advances in Neural Information Processing Systems" 14, 849-856, 2002
- Kumar & Daumé, A Co-training Approach for Multi-view Spectral Clustering, ICML, 2011
- Govindu, A Tensor Decomposition for Geometric Grouping and Segmentation, CVPR 2005
- Chen & Lerman, Spectral Curvature Clustering, International Journal of Computer Vision, 81:317-330, 2009
- 🗾 Fowlkes, Belongie, Chung & Malik, Spectral Cluestring Using the Nyström Method , IEEE Transaction on Pattern Analysis and Machine Intelligence, 26(2), 2004

# Contact information

To express interest in the course, please send an email to

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Senast uppdaterad: 2014-03-18