Mathematics and CS Seminar

Kernel Clustering meets Graphical Models

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This talk discusses two seemingly unrelated data analysis methodologies: kernel clustering and graphical models. Clustering is an unsupervised learning technique for generaldata where kernel methods are known for their discriminating power. Graphical models such as Markov Random Fields (MRF) and related continuous geometric methods representcommon image segmentation methodologies. While both clustering and regularization models are very widely used in machine learning and computer vision, they could not becombined before due to significant differences in the corresponding optimization, e.g. spectral relaxation vs. combinatorial optimization methods. This talk reviews thegeneral properties of kernel clustering and graphical models, discusses their limitations (including newly discovered "density biases" in kernel methods), and proposes ageneral easy-to-implement algorithm based on iterative bound optimization. In particular, we show that popular MRF potentials introduce principled geometric and contextualconstraints into clustering, while standard kernel methodology allows graphical models to work with arbitrary high-dimensional features (e.g. RGBD, RGBDXY, deep, etc).

Friday, December 15, 2017 09:45am - 10:45am

Mondi Seminar Room 3, Central Building

This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station. Please find a schedule of the ISTA Shuttle on our webpage: https://ista.ac.at/en/campus/how-to-get-here/ The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.