



Fall 2008 CIS Colloquium Series

Multiscale Random Fields with Application to Contour Grouping

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Abstract: We introduce a new interpretation of multiscale random fields (MSRFs) that admits efficient optimization in the framework of regular (single level) random fields (RFs). It is based on a new operator, called append, that combines sets of random variables (RVs) to single RVs. We assume that a MSRF can be decomposed into disjoint trees that link RVs at different pyramid levels. The append operator is then applied to map RVs in each tree structure to a single RV. We demonstrate the usefulness of the proposed approach on a challenging task involving grouping contours of target shapes in images. It provides a natural representation of multiscale contour models, which is needed in order to cope with unstable contour decompositions. The append operator allows us to find optimal image segment labels using the classical framework of relaxation labeling. Alternative methods like Markov Chain Monte Carlo (MCMC) could also be used.

Bio: Longin Jan Latecki is Associate Professor in Temple University's Department of Computer and Information Sciences and the Center for Information Science and Technology. He has published over 100 articles in peer-reviewed conferences and journals, and is an editorial board member of the Journal of Mathematical Imaging and Vision and Pattern Recognition. He is the winner of the 25th Annual Pattern Recognition Society Award together with Azriel Rosenfeld for the most original manuscript from all 1998 Pattern Recognition issues. His research interests lie in the development of intelligent systems for robot perception, and in particular, object detection and recognition in digital images.

Location: 4th Floor Conference Room (Wachman 447)

Time: 3-4pm, Wednesday, October 22, 2008

Refreshments will be served!