Einladung zum Oberseminar Wissenschaftliches Rechnen

Julius-Maximilians-Universität Würzburg
Lehrstuhl für Wissenschaftliches Rechnen IX

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Multiscale Detection of Faint Edges in Noisy Images

A fundamental question for edge detection in noisy images is how faint can an edge be and still be detected. We propose a formalism to study this question and subsequently introduce computationally efficient multiscale algorithms designed to detect faint edges in noisy images. Our formalism views edge detection as a search in a discrete set of feasible curves and provides expressions that characterize the behavior of the optimal detection threshold as a function of curve length and the complexity of the search space. We then use this formalism to construct two multiscale edge detection algorithms. The first algorithm detects straight edges, whereas the second detects curved edges. We demonstrate the utility of our algorithms both on simulated images and in applications involving challenging real images. Finally, we use our algorithms to detect and enhance fibers and apply them to detect nerve axons in light microscopy images.

Ort: Raum 30.02.003 (2. Stock) (Mathegeb. 30 West) Zeit: Mittwoch, 18.9.2013 um 10.00 Uhr

Zu diesem Vortrag laden wir Sie herzlich ein.

gez. Prof. Dr. Alfio Borzi