

# Convex Relaxation Methods for Computer Vision

Daniel Cremers, Technische Universität München

Numerous computer vision problems can be solved by variational methods and partial differential equations. Yet, many traditional approaches correspond to non-convex energies giving rise to suboptimal solutions and often strong dependency on appropriate initialization. In my presentation, I will show how problems like image segmentation, multiview stereo reconstruction and optic flow estimation can be formulated as variational problems. Subsequently, I will introduce methods of convexification which allow to compute globally optimal or near-optimal solutions. The resulting algorithms provide robust solutions, independent of initialization and compare favorable to spatially discrete graph theoretic approaches in terms of computation time, memory requirements and accuracy.