Elizabeth Lopes Pimenta

"Modelos Deformáveis Aplicados na Detecção e no Reconhecimento de Objetos 2-D"

This dissertation describes the techniques used in the development of a segmentation system applied over bidimensional images. The implemented systems is able to detect the contour of a free-form object, using a dynamic deformable model, which guaranties first-order continuity everywhere. This dynamic characteristic is based on the optimization of an energy function associated to the mathematical formulation of the model. In addition, the mentioned energy function was used in the development of pattern recognition system. The implemented recognition process is based on the association between the form and the energy, naturally defined by the segmentation procedure. This new method for pattern recognition proved to be invariant under affine transformation (rotation, translation and scale) which optimizes the general recognition procedure.