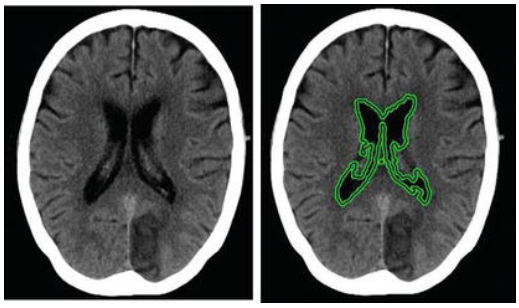
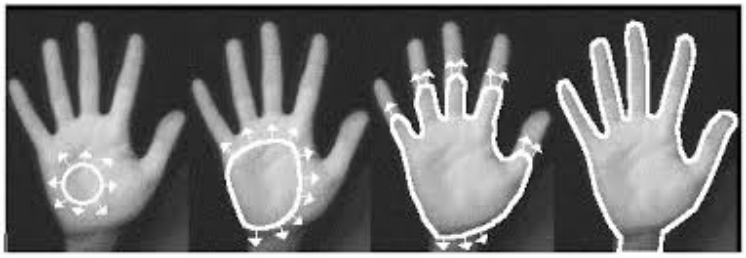
What are active contour algorithms?

Active contour is one of the active models in segmentation techniques, which makes use of the energy constraints and forces in the image for separation of region of interest. Active contour defines a separate boundary or curvature for the regions of target object for segmentation. The contour depends on various constraints based on which they are classified into different types such as gradient vector flow, balloon and geometric models. Active contour models are used in various image processing applications specifically in medical image processing. In medical imaging, active contours are used in segmentation of regions from different medical images such as brain CT images, MRI images of different organs, cardiac images and different images of regions in the human body.



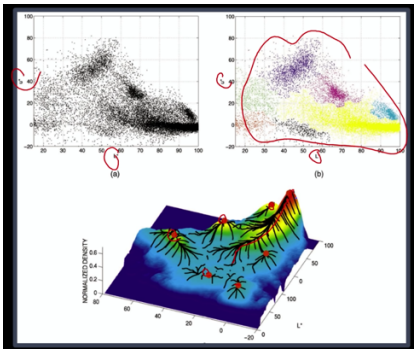
How does the snake active contour algorithm work?

It uses a certain amount of prior knowledge about the target object contour especially for complex objects. generally configures by the application of spline focussed to minimise energy followed by various forces governing the image. Spline is a mathematical expression of a set of polynomials to derive geometric figures like curves. Spline of minimising energy guides the constraint forces and pulled with the help of internal and external image forces based on appropriate contour features.



How does the mean shift algorithm work?

Es una técnica de análisis de espacio de características no paramétrica para localizar los máximos de una función de densidad, un denominado algoritmo de búsqueda de modo. Funciona segmentando la frecuencia en que se repiten los tonos en una imagen.



How does the watershed algorithm work?

Funciona segmentando los tonos hasta llevar su frecuencia/intensidad a un mínimo local para formar un contorno de la forma donde sean mas presente.