AUTOSEGMENTATION TOOL

Grigsby, Perry, Ma, Daniel, Rao, Yuan

Hardin, Clyde "Frank"

T-010736

The technology encompasses a software method for automatically and interactively segmenting previously acquired medical images, including MRI and CT studies, based on edge and interior characteristics of regions. The method allows for arbitrary levels of sensitivity in differentiating areas of interest such as organs, implants, or tumors from adjacent tissue. The interface proposed for the method also allows the user to interactively select the desired regions as they appear through a natural progression of possible segmentations of the image. The technology is expected to significantly reduce the labor and time required to segment and contour medical images and increase the agreement of contouring between operators.

Proof of concept code is available for Matlab. Unpublished data suggest that it is comparable in accuracy to manual contouring for cervical tumors imaged using apparent diffusion coefficient maps, a task that cannot be accomplished using existing commercially available auto-contouring methods. There is qualitative evidence that it can easily contour solid organs and bones. It can also successfully segment non-medical images.