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Einarsdottir, Hildur; Ersbøll, Bjarne Kjær; Larsen, Rasmus

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Segmentation of Connective Tissue in Meat from Microtomography Using a Grating Interferometer

Hildur Einarsdóttir¹, Bjarne K. Ersbøll¹ and Rasmus Larsen¹

In this study a two step segmentation algorithm was implemented in order to segment connective tissue from phase contrast microtomograms obtained by a grating-interferometer. This segmentation has previously been demonstrated for the segmentation of the optic nerve head from microscopic images of stained slices [3]. The first step is to model the data as a mixture of Gaussians using an expectation-maximization (EM) algorithm [4]. This iterative process finds the maximum likelihood of parameters where the model depends on unobserved latent variables. The spatial information of the data is next incorporated into the segmentation process by modeling the data as a mixture of Gaussians using an expectation-maximization (EM) algorithm [4]. This iterative process finds the maximum likelihood of parameters where the model depends on unobserved latent variables. The spatial information of the data is next incorporated into the segmentation process by modeling the data as a mixture of Gaussians using an expectation-maximization (EM) algorithm [4].

The results show that the segmentation provides a superior classification of connective tissue over conventional threshold segmentation. Additionally modeling the data as a mixture of Gaussians made it possible to segment the connective tissue into two separate classes. The segmentation results provide the means for further analysis of the structural changes in the meat due to heat treatment.

REFERENCES


