



Jianning Xu

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Education:

BS (Computer Engineering), Harbin Institute of Technology, China
PhD (Computer Science), Stevens Institute of Technology

Research Expertise:

Image Processing | Computer Vision

My research interests include Mathematical Morphology and shape analysis, representation, and recognition.

Morphological shape analysis has been the focus of my research efforts in recent years. I have developed and published several new morphological shape representation algorithms. In these algorithms, a 2-D shape can be represented as a collection of rectangular shape components, or a collection of convex polygons, or a collection of overlapping disks. Morphological operations are used to derive the shape components used in the representations in these algorithms. The advantages of these new algorithms include that the shape components have simple and well-defined mathematical characterizations; the representations are compact and efficient for computers to manipulate; and the algorithms are simple and efficient to implement. Shape matching algorithms based on these shape representation algorithms have also been developed and published.

Recent Publications:

Xu J (2014) A Generalized Morphological Skeleton Transform Using both Internal and External Skeleton Points, Pattern Recognition, 47:2607-2620.

Xu J (2011) Shape matching using both internal and external morphological shape components in Proceedings of 2011 International Conference on Image Processing, Computer Vision, and Pattern Recognition (HR Arabia, L Deligiannidis, G Schaefer, Eds), CSREA Press. pp 10-15.

Xu J (2008) Shape Matching Using Morphological Structural Shape Components, in Proceedings of the 15th IEEE International Conference on Image Processing.

Xu J (2007) Morphological decomposition of 2-D binary shapes into modestly overlapped octagonal and disk components, IEEE Transactions on Image Processing, 16:337-348.