

Image Rotation Using an Augmented 2-Step Shear Transform

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Abstract : Image rotation is one of main pre-processing steps for image processing or image pattern recognition. It is implemented with a rotation matrix multiplication. It requires a lot of floating point arithmetic operations and trigonometric calculations, so it takes a long time to execute. Therefore, there has been a need for a high speed image rotation algorithm without two major time-consuming operations. However, the rotated image has a drawback, i.e. distortions. We solved the problem using an augmented two-step shear transform. We compare the presented algorithm with the conventional rotation with images of various sizes. Experimental results show that the presented algorithm is superior to the conventional rotation one.

Keywords : high-speed rotation operation, image rotation, transform matrix, image processing, pattern recognition

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