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REGION DEPTH ORDERING IN MONOCULAR SINGLE IMAGE USING
STATISTICAL BLURRING MEASURE

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A Dissertation Submitted in Partial Fulfillment of the Requirements
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Department of Mathematics

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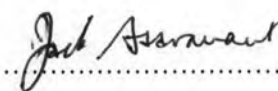
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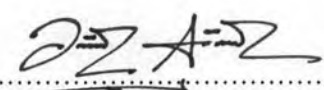
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วิทยานิพนธ์ฉบับนี้เสนอขั้นตอนวิธีในการเรียงลำดับพื้นที่ภายในภาพตามความลึก จากภาพเดี่ยวเพียงภาพเดียวโดยใช้โครงข่ายประสาทเทียมแบบหลายชั้นชนิดป้อนกลับ โดยลักษณะเด่นที่นำมาทำการเรียนรู้คือค่าสัมประสิทธิ์เวฟเล็ตของภาพ ผลจากการสกัดคุณลักษณะเด่นนี้คือข้อมูลของความแตกต่างของพื้นผิวของวัตถุในบริเวณต่างๆ ภายในภาพ โดยผลการเรียนรู้ที่ได้จะเป็นความสัมพันธ์ระหว่างความลึกเปรียบเทียบของวัตถุ กับความแตกต่างของพื้นผิวภายในภาพ วิทยานิพนธ์นี้ได้ใช้ภาพสำหรับเรียนรู้จำนวน 125 ภาพ โดยแบ่งเป็นกลุ่มการเรียนรู้ 5 กลุ่ม ซึ่งผลการทดลองแสดงให้เห็นถึงประสิทธิภาพในการแยกวัตถุตามความลึกเปรียบเทียบ โดยมีอัตราความถูกต้องมากกว่าร้อยละ 94 โดยเฉลี่ย

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This paper proposed a region depth ordering method from monocular single image by using multi-layer back-propagation neural network. The feature that used in this work is the wavelet coefficients of the training images. The feature extraction results are the different of the object's texture information of the areas in the images. The learning results are the relationship between the logical depth of the object and the different of area's texture information in the training images. In this paper, we used 125 images to be the training images by divided into 5 groups for validation. Experimental results show that performance in object's depth ordering that the correctness is more than 94% on average.

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