

Article Information

Article Information	
ID:	5226-JCS
Manuscript Category:	Research Articles
Submitted On:	Jul 31, 2017
Title	
Determination of SVM-RBF Kernel Space Parameter to Optimize Accuracy Value of Indonesian Batik Images Classification	
Abstract	
<p>Image retrieval using Support Vector Machine (SVM) classification very depends on kernel function and parameter. Kernel function used by dot product substitution from old dimension feature to new dimension depends on image dataset condition. In this research, parameter of Gaussian /Radial Basis Function (RBF) kernel function is optimized using multi class non-linear SVM method, and implemented to training and test datasets of traditional Indonesian batik images. The batik images dataset is limited to four geometric motifs textures, which are ceplok/ceplok, kawung, nitik, and parang/lerang. Discrete Wavelet Transform level 3 daubechies 2 is used to result feature dataset of traditional batik images dataset of four classes geometric motifs textures. The batik images are used for training and test dataset in SVM-RBF kernel parameter optimization to maximize accuracy value in non-linear multi-class classification. Cross Validation and Grid-search methods are used to analyze and evaluate SVM-RBF kernel parameter optimization. Confusion matrix measurement method is used to result accuracy value in every evaluation conducted in every combination of cost function/C and gamma/ γ as SVM-RBF kernel parameter. Maximum accuracy parameter value is $C=27$ and $\gamma=2-15$ achieved by 10 times evaluation wit different test dataset for each evaluation. Maximum accuracy value is 0.77 to 0.86. Keywords—kernel parameter, Gaussian/RBF, Support Vector Machine/SVM, Discrete Wavelet Transform/DWT, Indonesian traditional batik, geometric motifs</p>	
Novelty Statement	
<p>develop an method of determining the optimal value of space parameter in non-linear multi-class SVM-RBF kernel for classification of batik motif with geometric ornament. Based on the result in this research, we recommend that classification of images with geometric motifs texture using non-linear multi class SVM-RBF kernel can use grid-search range of $C = \{,26.5, 26.75, 27, 27.25, 27.5, 27.75, 28\}$ dan $\gamma = \{2-14.5, 2-14.75, 2-15, 2-15.25, 2-15.5, 2-15.75, 2-16\}$.</p>	
Subject Area	
<p>Computer Vision and Pattern Recognition</p> <p>Image Processing</p> <p>Pattern Recognition</p>	

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File Name	File Type	Date
5226a-JCS.doc	Revised File	Sep 27, 2017
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5226-JCS Similarity Report.pdf	Supplementary Material	Sep 18, 2017
fikri-jurnal2_edit01.docx (Your Comments to Review Round #1)	Revised File	Sep 12, 2017
5226-JCS covering letter.pdf	Supplementary Material	Aug 24, 2017
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Comments to Review Round #1 (Close)
Response to Comments & Corrective Actions
<p>dear sir,here by i submit my revision paper as the correction from the reviewer. the paragraphs colored with yellow are revision for correction mentioned by reviewer 1 and 2, and i have used equation editor to write the equations. I add the future work in the last paragraph of the paper.</p> <p>thank you for your attention,</p>

sincerely
fikri budiman

Review Rounds

Round	Editor	Actions
Round #1	Ayush Dogra	View Review Decision View Your Comments

Final Decision [\(Close\)](#)

Recommendation

Minor Revision

Comments from the Editor

Dear Author, I am writing to you in regards of # 5226-JCS entitled "Determination of SVM-RBF Kernel Space Parameter to Optimize Accuracy Value of Indonesian Batik Images Classification". In view of the comments of the reviewer(s) found at the bottom of this letter, your manuscript has been subjected to minor revision, With the strict and precise incorporation of comments provided below by each of the reviewers your manuscript can be accepted for publication: Please revise your manuscript based on reviewers' feedback and resubmit. We sincerely hope you will update your manuscript and resubmit soon. Please contact me if you have any questions. Thank you for your interest in JCS. Sincerely, Ayush Dogra Editor, JCS

Comments: Reviewer 1 Dear Sir, The following are my notes: The paper didn't conclude any new result which can be taken by other researches in the future for the suitable values for C and $\hat{\lambda}^3$. Many English mistakes with unsuitable beginning for some paragraphs; the sentence shouldn't begin with number. They recommended to use new range for C and $\hat{\lambda}^3$, can you give me the reasons? It is very important to mention the number of reference especially when the later conclude a result that adopt in the current paper; using std and energy estimators

Reviewer 2) The major flaw of the article is that equations are not written in equation editor, so it is suggested to write equations in equation editor. 2) Check for similarity index 3) Use more objective evaluation metrics to validate your technique (average accuracy and average error). 4) I think that some amount of visual results would further enhance the overall appeal of the article as the method is proposed for image classification. 5) Add proper section of experimental setup and future work.