

PROJECT REPORT
ON
FEATURE SELECTION OF IMAGE CLASSIFICATION BASED ON
NEW RANKING CRITERION

A Dissertation submitted in partial fulfillment of the

Requirements for the award of the degree of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

Submitted By

A. AKSHAY KUMAR 15B81A0513

Under the esteemed guidance of

Ms. G. Ramya

Assistant Professor-CSE



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

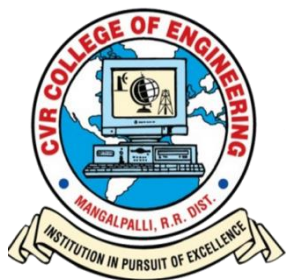
CVR COLLEGE OF ENGINEERING

(UGC Autonomous Institution)

Accredited by NBA & NAAC 'A' Grade

(Approved by AICTE & Govt. of Telangana and Affiliated to JNT University, Hyderabad)

Vastunagar, Mangalpally (v), Ibrahimpatanam (M), R.R.Dist-501 510.Telangana.



CVR COLLEGE OF ENGINEERING

(An Autonomous Institution)

ACCREDITED BY NBA, NAAC 'A' Grade

(Approved by AICTE & Government of Telangana and Affiliated to JNTU Hyderabad)
Vastunagar, Mangalpalli (V), Ibrahimpatnam (M), R.R.District.

Web: <http://www.cvr.ac.in>, email: info@cvr.ac.in

Ph : 08414 – 252222, 252369, Office Telefax : 252396, Principal : 252396 (O)

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CERTIFICATE

This is to certify that the project entitled “**FEATURE SELECTION OF IMAGE CLASSIFICATION BASED ON NEW RANKING CRITERION**” is a bonafide work carried out by **A. AKSHAY KUMAR (15B81A0513)** under my guidance and supervision in the partial fulfillment of the requirement for the award of degree of Bachelor of Technology in Computer Science and Engineering to Jawaharlal Nehru Technological University (JNTUH), Hyderabad during the academic year 2018-2019.

Ms. G. Ramya

Assistant Professor

Department of CSE

CVR College of Engineering

Prof. K. Venkateshwara Rao

Head of the department

Department of CSE

CVR College of Engineering

External Examiner

DECLARATION

We hereby declare that the project entitled “**FEATURE SELECTION OF IMAGE CLASSIFICATION BASED ON NEW RANKING CRITERION**” submitted by us to CVR College of Engineering, in the partial fulfilment of the requirement for the award of degree of Bachelor of Technology in Computer Science and Engineering is a record of bonafide project work carried out by us under the guidance of **Ms. G. Ramya**. We further declare that the work reported in this report have not been submitted to any other university or institution.

A. Akshay Kumar (15B81A0513)

ACKNOWLEDGEMENT

The satisfaction that accompanies the successful completion of any task would be incomplete without the mention of the people who made it possible and whose encouragement and guidance has been a source of inspiration throughout the source of the project.

It is a great pleasure to convey our profound sense of gratitude to our Principal **Dr. K. S. Nayanathara**, Vice Principal **Prof. L.C Shiva Reddy**, **Dr. K. Venkateshwara Rao**, Head of the Department of Computer Science and Engineering, CVR college of Engineering for having been kind enough for arranging the necessary facilities for executing the project in the college.

We would like to express our sincere gratitude to our guide **Ms. G. Ramya**, **Assistant Professor** of CSE Dept., CVR College of Engineering, whose guidance and valuable suggestions have been indispensable to bring about the successful completion of our project.

We would also like to express our gratitude to all the Staff members and lab Faculty, Departments of Computer Science and Engineering, CVR College of Engineering for the constant help and support.

We wish a deep sense of gratitude and heartfelt thanks to management for providing excellent lab facilities and tools. Finally, we thank all those whose guidance helped us in this regard.

ABSTRACT

In this paper, a feature selection method combining the relief and SVM-RFE algorithm is proposed. This algorithm integrates the weight vector from the relief into SVM-RFE method. In this method, the relief filters out many noisy features in the first stage. Then the new ranking criterion based on SVM-RFE method is applied to obtain the final feature subset. The SVM classifier is used to evaluate the final image classification accuracy. Experimental results show that our proposed relief- SVM-RFE algorithm can achieve significant improvements for feature selection in image classification.

Keywords: Feature Selection, Image Classification, New Ranking Criterion.

Table of Contents

1. Introduction.....	1
1.1 Introduction.....	1
1.2 Subset Selection.....	2
1.3 Literature Survey.....	4
1.4 Theoritical and Empirical Analysis of relief and reliefF.....	7
2. Software and hardware requirements.....	11
2.1 Existing System.....	11
2.2 Proposed System.....	13
2.3 Purpose of the Project.....	22
2.4 Functional Requirements.....	23
2.5 Non-Functional Requirements.....	23
2.6 Software Requirements.....	23
2.7 Hardware Requirements.....	30
2.8 Dataset.....	30
3. Design.....	31
3.1 System Architecture.....	31
3.2 Objectives.....	31
3.3 Output Design.....	32
4. Implementation.....	33
4.1 Working Model.....	33
4.2 reliefF Algorithm.....	33
4.3 SVM-RFE Algorithm.....	35
4.4 Combining both the Algorithms.....	38
4.5 Code.....	38
4.5.1 Selecting an image from the dataset.....	38
4.5.2 To represent the selected image on an axis.....	38
4.5.3 Search for the matching images.....	39
4.5.4 Ranking the images.....	40
4.5.5 Feature Selection based in wavelength.....	41

4.6 Experimental Results.....	42
5. Software Testing.....	43
5.1 Test Case.....	43
6. Conclusion.....	47
7. References.....	48