



Aditya College of Engineering & Technology

Aditya Nagar, ADB Road, Surampalem - 533437

DEPARTMENT OF INFORMATION TECHNOLOGY

B. Tech 4/4, II-SEMESTER

II Semester 2020-21

IMAGE CLASSIFICATION BASED ON DEEP LEARNING ALGORITHMS

ABSTRACT

Convolutional neural networks (CNN) have been widely used in automatic image classification systems. In most cases, features from the top layer of the CNN are utilized for classification; however, those features may not contain enough useful information to predict an image correctly.

In general, each image is composed of set of pixels and each pixel is represented with different values. To classify images, it must perform higher number of calculations. For this it requires systems with higher configuration and more computing power.

In some cases, features from the lower layer carry more discriminative power than those from the top. Therefore, applying features from a specific layer only to classification seems to be a process that does not utilize learned CNN's potential discriminant power to its full extent. This inherent property leads to the need for fusion of features from multiple layers. To address this problem, we propose a method of combining features from multiple layers in given CNN models. Moreover, already learned CNN models with training images are reused to extract features from multiple layers. The proposed fusion method is evaluated according to image classification benchmark data sets, CIFAR-10, NORB, and SVHN. In all cases, we show that the proposed method improves the reported performances of the existing models by 0.38%, 3.22% and 0.13%, respectively.

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Course Outcomes (COs)

Course Outcomes

After completing this course, the student will be able to:

CO Number	CO Statement	Taxonomy
CO1	Demonstrate the technical knowledge to identify problems in the field of Information Technology and its allied areas.	Understand
CO2	Use literature to identify the objective, scope and the concept of the work.	Apply
CO3	Analyze and formulate technical projects with a comprehensive and systematic approach.	Analyse
CO4	Identify the modern tools to implement technical projects.	Evaluate
CO5	Design engineering solutions for solving complex engineering problems.	Create
CO6	Develop effective communication skills, professional behaviour and team work.	Understand

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CO-PO/PSO MATRIX:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	2	1			1			3	2	2	2	3	2	
CO2	2	1	2	2	1	1		1	3	2	2	2	3	3	1
CO3	1	1	3	3	1	1			3	2	2	2	3	2	1
CO4	2	1	1	2	3	1		2	3	2	2	2	2	1	2
CO5	2	2	3	3	2	1		1	3	2	3	2	3	1	1
CO6	1	1	1	2	1	1		1	2	3	2	2	3	2	1
Course	1.8	1.3	1.8	2.0	1.3	1.0	0.0	0.8	2.8	2.2	2.2	2.0	2.8	1.8	1.0

PO1	Engineering Knowledge	PO7	Environment & Sustainability
PO2	Problem Analysis	PO8	Ethics
PO3	Design / Development of Solutions	PO9	Individual & Team Work
PO4	Conduct Investigations of complex problems	PO10	Communication Skills
PO5	Modern Tool usage	PO11	Project Management & Finance
PO6	Engineer & Society	PO12	Life-long Learning

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