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Department of Research & Development
Mid - Term Examinations - SEPTEMBER 2024

Odd Semester: Ph.D. Course Work	Date: 28 /09/2024
Course Code: CSE 886	Time: 2:00pm – 3:30pm
Course Name: Introduction to Computer Vision and Image Processing	Max Marks: 50
Department: SoCSE and IS	Weightage: 25%

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 5 marks.		4Qx5M=20M
1	Elaborate on the role of Softmax in multiclass classification. How does it compare to traditional logistic regression?	5 Marks
2	You are tasked with developing an image classification system to assist radiologists in diagnosing medical conditions from X-ray images. Utilising your knowledge of neural networks and deep learning, outline a plan for implementing a convolutional neural network (CNN) tailored to this task.	5 Marks
3	Explain the concept of pixel transformation in image processing. Provide a real-world scenario where pixel transformation is crucial for image enhancement. Discuss the specific pixel-level operations that can be applied to achieve the desired enhancement in the given scenario. Additionally, highlight any challenges or considerations in pixel transformation for image processing.	5 Marks
4	You are leading a team in a research project aimed at developing an image classification system for identifying different types of vehicles in traffic surveillance images. Utilizing your knowledge of computer vision and machine learning techniques, devise a comprehensive plan for implementing the image classification system.	5 Marks

Part B

Answer ALL Questions. Each question carries 15 marks.

2QX15M=30M

5	Develop the basic steps of using OpenCV to resize an image and perform edge detection on it.	15 Marks
6	Develop an application to label a dataset for image classification tasks, and why is labeling important in machine learning?	15 Marks