SPARK Mid-Term Report

Supervisor – Prof. Alok Bhardwaj

Intern Name – Abdul Rehman

Institute Name –Sant Longowal Institute of Engineering and Technology, Deemed University

Joining Date – 06/06/2022

Category – National

SPARK ID – SPA2202882

Department – Mehta Family School of Data Science and Artificial Intelligence

Project Title – Identification of flood extents in SAR images

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Week1: Intern studied and implemented the codes of 2D CNN, KNN, and SVM on different types of classification datasets like Diabetes Classification and MNIST. During this process, the intern also studied CNN in detail including the function of activation Layers, Pooling Layers, Batch Normalization, Fully Connected Layers, and Dropout Layers.

Week2: Intern studied Open CV and its applications like Binarization, Adaptive Thresholding, Edge Detection, Image Gradients, Approximating Contours and Convex Hull, Identifying Contours by Shape, Dilation, Line Detection - Using Hough Lines, Sharpening. Further, I learned about segmentation techniques like Ostu's Segmentation, Random Walker Segmentation and Edge Based Images Segmentation.

Week3: Intern studied Pretrained Models, their architecture, and their work using Keras and TensorFlow, and implemented these models from scratch and made predictions based on the dataset and made a confusion matrix and correlation matrix.

Week 4: Intern implemented transfer learning and did feature extraction, and fine-tuning on pretrained models . Some of pretrained Models on which i worked are LeNet-5(1998) , AlexNet(2012) , ZFNet (2013) , GoogleLeNet (2014) , VGG 16 Net(2014) , ResNet (2015) , EfficientNet (2019) , MobileNet (2019) .