

List of Figures

Fig No.	Fig. Caption	Page No.
Fig. 1.1	Research Flow	11
Fig. 2.1	CNN Architecture	35
Fig. 3.1	Sample Food images from Traditional Gujarati food dataset	48
Fig. 4.1	Algorithm ISMF	56
Fig. 4.2	Flowchart of ISMF	57
Fig. 4.3	Illustration of Case 1 of ISMF.....	58
Fig. 4.4	Illustration of Case 2 of ISMF.....	58
Fig. 4.5	Illustration of Case 3 of ISMF.....	58
Fig. 4.6	Illustration of Case 4 of ISMF.....	59
Fig. 4.7	Illustration of Case 5 of ISMF.....	59
Fig. 4.8	Comparison graph of PSNR and MSE for different noise for Food image	62
Fig. 4.9	Applying filters to noise images.....	63
Fig. 5.1	Transfer Learning	67
Fig. 5.2	Layers Configuration of VGG16 after Transfer Learning	68
Fig. 5.3	Layers Configuration of VGG19 after Transfer Learning	68
Fig. 5.4	Layers Configuration of ResNet50 after Transfer Learning.....	69
Fig. 5.5	Layers Configuration of InceptionV3 after Transfer Learning.....	69
Fig. 5.6	Layers Configuration of Alexnet after Transfer Learning	70
Fig. 5.7	Accuracy curve for VGG16 after Transfer Learning.....	71
Fig. 5.8	Accuracy curve for VGG19 after Transfer Learning.....	71
Fig. 5.9	Accuracy curve for ResNet50 after Transfer Learning.....	71
Fig. 5.10	Accuracy curve for InceptionV3 after Transfer Learning.....	71
Fig. 5.11	Accuracy curve for Alexnet after Transfer Learning.....	71
Fig. 5.12	Fine-tuning.....	73
Fig. 5.13	Layers Configuration of VGG16 after Fine-tuning.....	74
Fig. 5.14	Layers Configuration of VGG19 after Fine-tuning.....	75
Fig. 5.15	Layers Configuration of ResNet50 after Fine-tuning.....	75

Fig. 5.16 Layers Configuration of InceptionV3 after Fine-tuning.....	76
Fig. 5.17 Layers Configuration of Alexnet after Fine-tuning.....	76
Fig. 5.18 Accuracy curve for VGG16 after Fine-tuning	78
Fig. 5.19 Accuracy curve for VGG19 after Fine-tuning	78
Fig. 5.20 Accuracy curve for ResNet50 after Fine-tuning	78
Fig. 5.21 Accuracy curve for InceptionV3 after Fine-tuning	78
Fig. 5.22 Accuracy curve for Alexnet after Fine-tuning	78
Fig. 5.23 Comparison of Classification Accuracy.....	80
Fig. 6.1 Architecture of the proposed model DRCNN.....	89
Fig. 6.2 Structure of the Depth Restricted Convolutional Neural Network.....	91
Fig. 6.3 Algorithm of DRCNN.....	93
Fig. 6.4 Training vs. validation accuracy before and after pre-processing.....	95
Fig. 6.5 Comparison of Fine-tune Models accuracy with the DRCNN	97
Fig. 6.6 Comparison of Fine-tune Models parameters with the DRCNN	97
Fig. 6.7 Time Comparison of Fine-tune Models with the DRCNN	98
Fig. 6.8 Accuracy curve for DRCNN with training epoch set to 100.....	100
Fig. 7.1 Time complexity of each model based on chosen parameters.....	110