AIM: SIGN LANGUAGE DETECTION using gesture detection

1) STATIC GESTURE DETECTION: FINGERSPELLING

Name	Dataset info	Training Data	Test Data	Algorithm	Accuracy
ALPHABETS					
1) Alphabet Mnist Dataset	(24 alphabets: J and Z deleted as they include gesture movements: 28x28 pixels images Dataset	27,455 (21964: Training, 5491: Validation)	7172	CNN (3-layers)	95.3% NOTEBOOK
2) Alphabet Dataset	200x200 pixels images: 29 classes, of which 26 are for the letters A-Z and 3 classes for *SPACE*, *DELETE,* and *NOTHING* Dataset	78300	8700	A. CNN (3-layers) B. CNN (5-layers)	A. Train: 99.06% Test: 98% Train time: 41.52823 Test time: 0.899321 Notebook B. Train: 97.29% Test : 99.816 % Notebook
Alphabet + Digits:					
1) 26 Alphabets +10 (0-9) digits	Dataset	24026	1265	A. CNN (3-layers) B. CNN (5-layers)	A. Train:95% Notebook //check B. Train: 97.1% Test: 98.1%
Alphabets+Digits+ Static words gestures					
51 classes : 26 alphabets(1-9) 9 digits+ 16 Static	Dataset	182700	20300	A. 3-Layer CNN	A.Train: 79.25% Test: 64.84% Training time: 11248 sec Notebook

words: Baby, Brother, etc.. :				B. Inception V3 Model	B. Notebook NB2

2) Dynamic/Video Classification:

Name	Dataset Info	Training Data	Testing Data	Algorithm	Accuracy
Leap Motion Dataset (Dataset in form of XYZ coordinates) taken from leap motion sensor					
1) Continuous SIgn language dataset Using Leap Motion Sensor	42 sign gestures (Some words and alphabets) (Coordinates of gestures as acquired from leap motion sensor) Dataset	264 (211: Training + 53 Validation)	114	A. SVM B. LSTM C. CNN (3-Layer)	A.Train:97.72% Test:94.7% Test time per classification:1.5ms B.Train:99.8% Test:92.98% Test time per classification:23.6ms B.Train:100% Test:89.47% Test time per classification:1.3ms Notebook
2) Advanced Predictive Modelling	25 subjects each performing the same 60 ASL signs with both their left and right hands using a LeapMotion			Algorithms tried: LDA, QDA, KNN, Random Forest, Gaussian NB	LDA gave max accuracy: 81.6%(Two-hand) 89.3%(One-Hand) Prediction time= 0.0029 sec for 131 words (approx 4 letters per word) Others approx 50%

	Controller (LMC). Classes/Labels: 60 Dataset				