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NRITYANTAR: POSE OBLIVIOUS INDIAN CLASSICAL DANCE SEQUENCE CLASSIFICATION SYSTEM

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Fig. 1: Architecture of the Nrityantar Framework b) Block Diagram of the sequence learning framework in Nrityantar.

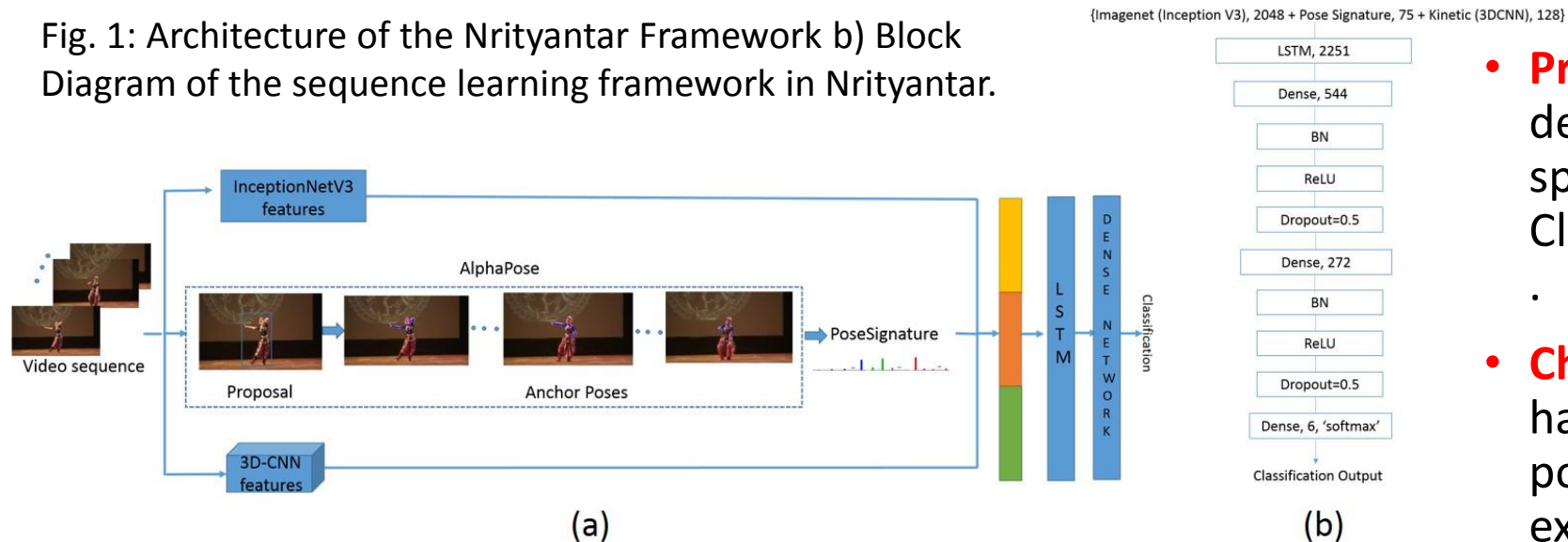
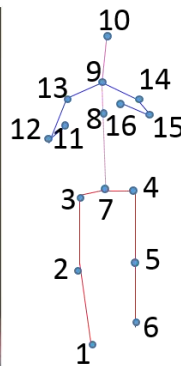


Fig. 2: (a) Pose of a Kathak dancer (b) Visualization of the anchor joints .



(a)



(b)

- **Problem Statement:** Human pose detection, action recognition in specialized domain area of Indian Classical Dance (ICD) classification .
- **Challenges:** Huge variations in hand (or hasta-mudras) and body postures (or anga bhavas), facial expressions or emotions depicting the nava-rasas, dress attires and head orientation.
- **Methodology:** Modelling kinematic relationship amongst the body joints across the frames helps in better establishing the spatio-temporal dependencies in a sequential learning framework.

Key Results

Dance Class	Precision	Recall	F1-Score	Support	Class Accuracy
Bharatnatyam	0.54	0.87	0.66	76	86.84
Kathak	0.65	0.88	0.74	58	87.93
Kuchipudi	0.82	0.71	0.76	126	70.63
Manipuri	0.62	0.25	0.35	53	24.52
Mohiniattam	0.97	0.94	0.95	63	93.63
Odissi	0.83	0.64	0.72	69	63.76
Average	0.75	0.72	0.71	445	72.35

Method	Bharatnatyam	Kathak	Kuchipudi	Manipuri	Mohiniattam	Odissi	Average Accuracy
InceptionV3	80.48	62.71	28.90	30.64	98.41	53.62	59.1
Pose Signature	88.15	79.31	43.65	41.50	96.82	71.01	67.41
Kinetics	84.21	68.96	56.34	30.18	96.82	57.97	65.61
InceptionV3+ Pose Signature	51.31	67.24	65.87	67.92	93.65	73.91	68.98
InceptionV3+ Kinetics	85.52	68.96	63.49	24.53	96.82	57.97	67.19
InceptionV3+ Pose Signature+ Kinetics	86.84	87.93	70.63	24.52	93.65	63.76	72.35