FRENCH SIGN LANGUAGE GESTURE CLASSIFICATION

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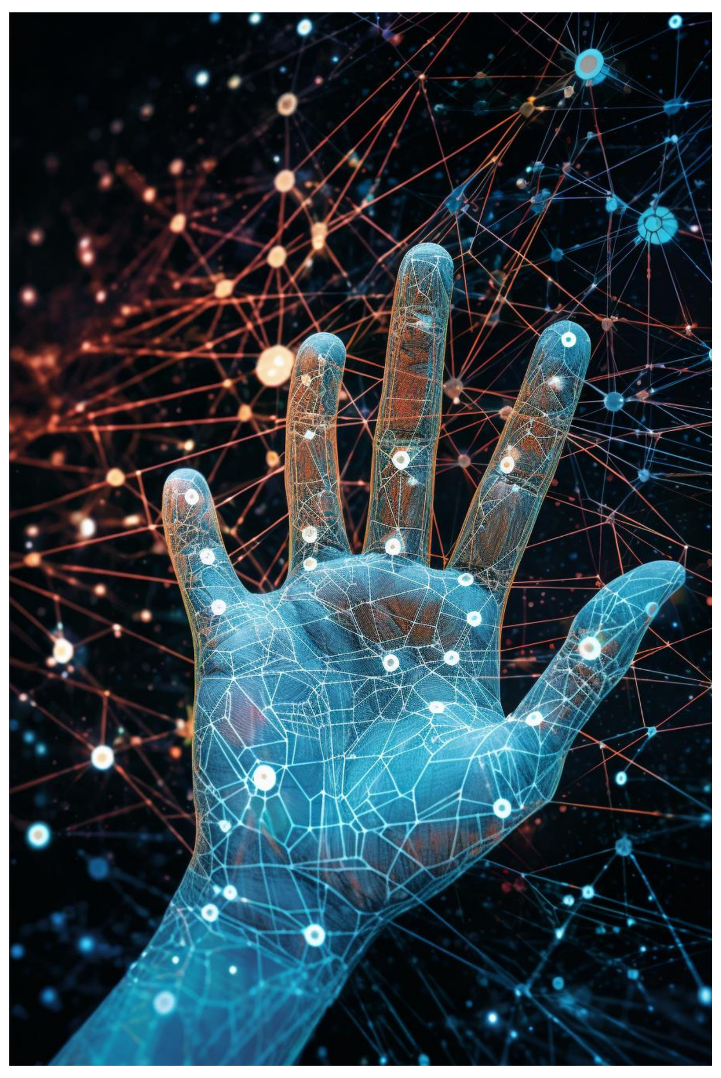
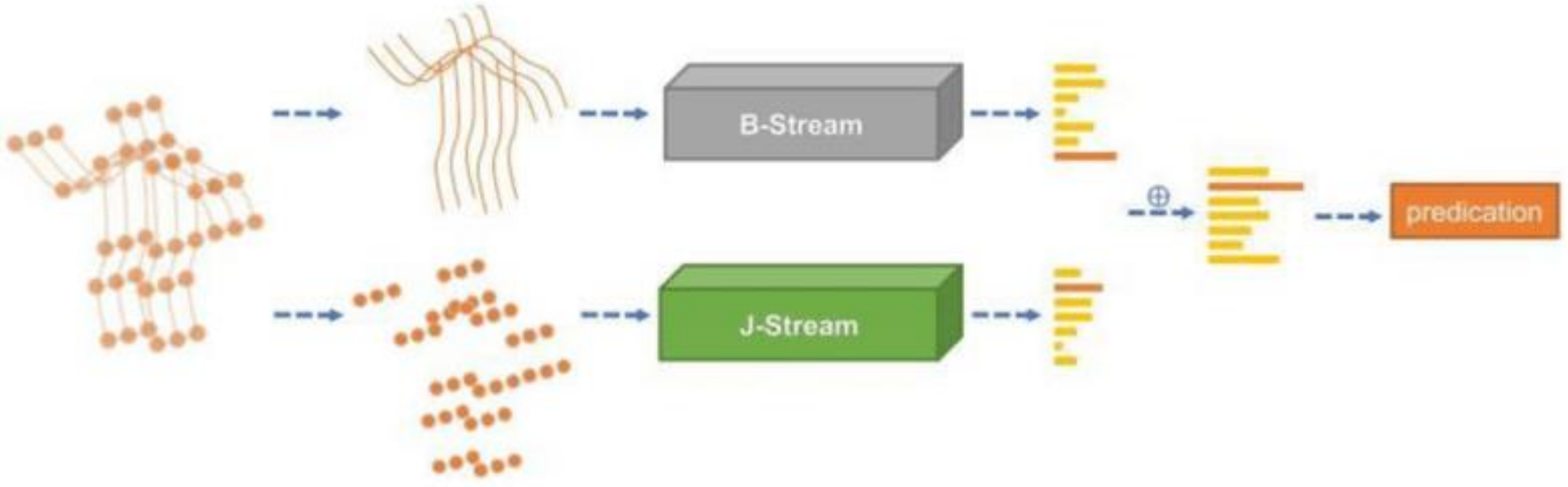


CLASSIFYING HAND SIGNS

MONO OR BIMANUAL HAND GESTURES ?

- Long Term Objective: Elaborate and train French Hand Sign Language classification models.
- With this goal, we developped a model allowing for sign annotation, wether they are mono or bimanual.
- By identifying different characteristics (signing area, palm orientation, etc.), our algorithm will allow to annotate FSL signs to augment MocapLab's database automatically.



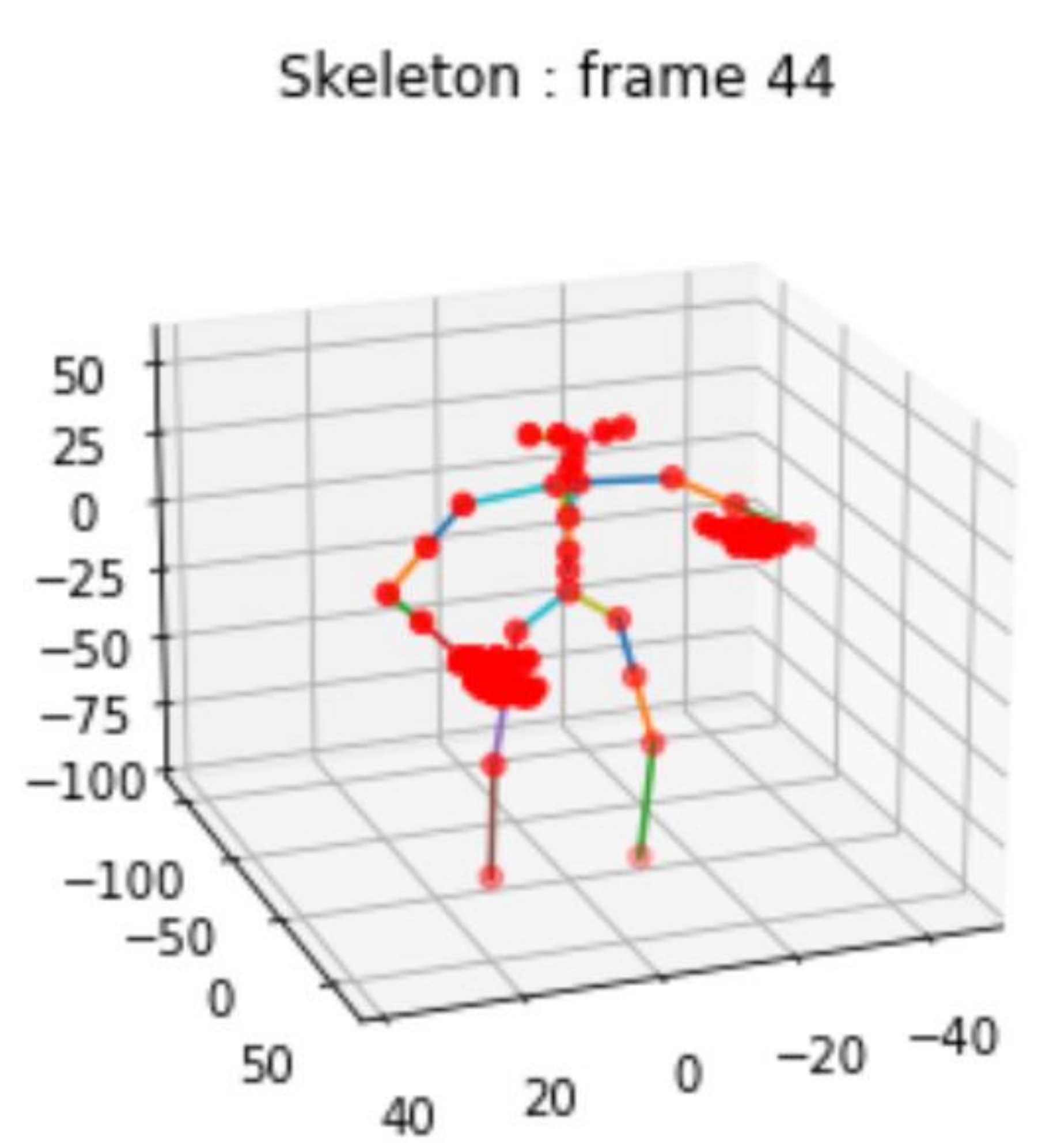
ACTION RECOGNITION: STATE OF THE ART

2S-AGCN ALGORITHM

- Graph Convolutional Neural Network (GCNN) are neural networks that identify relationships between nodes and bones of a graph.
- Traditional GCNN don't take into account the orientation or the length of the connections between nodes. Moreover, the topology of the graph is fixed and manually assigned.

The 2s-AGCN algorithm is inspired by GCNN to establish relationships between different entities by adding a temporal dimension. It is therefore the best suited to our needs.

- The 2s-AGCN implements adaptive graph learning and learns the importance of connections between nodes in predicting the actions of a skeleton.
- It processes the "joints" graph (nodes) and the "bones" graph (edges) separately and then in combination.
- It is therefore currently the most suitable model for recognizing shares.
- We use 2s-AGCN to predict the actions performed by an actor whose movements are recorded by Motion Capture.



Skeleton of the actor signing the word "Bonbon" in LSF

ADAPTATION

A COMPLEX ALGORITHM

1. We processed the raw Motion Capture data into skeletons:
   - Selection of the relevant joints
   - Creation of the skeleton (graph)
   - Pelvis normalization
2. We have developed a Python code to animate and visualise the skeletons.
3. We worked on the 2S-AGCN algorithm to adapt it to our graph.
4. We have trained the model to obtain satisfactory accuracy for the rest of the project.

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