

Extracting Signs from Weakly Aligned Sign Language Corpora: A Study on LSF and LSM

BACKGROUND

- **Automatic sign annotation is crucial** for sign language processing.
- Continuous sign language corpora are **difficult to annotate** because of **limited labeled data**
- This work proposes a **segmentation-first multimodal pipeline** to **extract signs** from weakly aligned corpora.
- Study compares **French Sign Language (LSF)** and **Mexican Sign Language (LSM)**.

DATASETS

LSF / MEDI-API-RGB

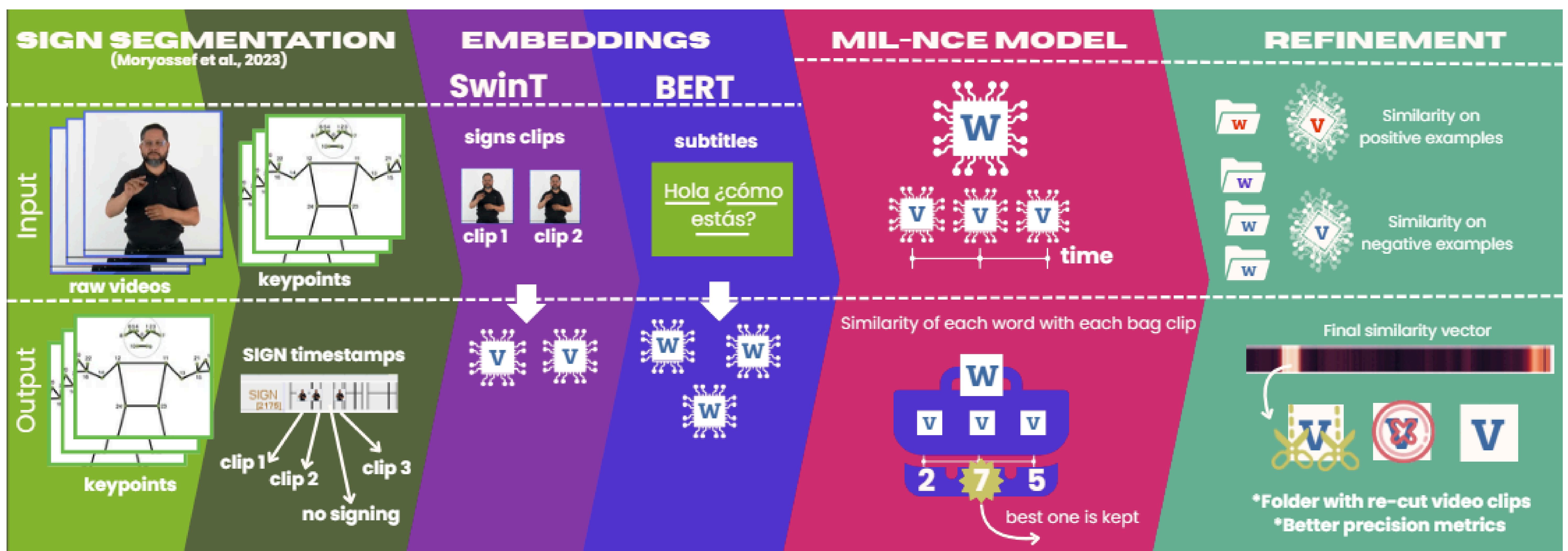
- 86 hours of LSF media broadcasts
- French subtitles aligned in post-production



LSM / TV-UNAM

- 220 hours of live Spanish-to-LSM interpreted broadcasts
- WhisperX used for automatic transcripts and automatically weakly aligned

METHODOLOGY



RESULTS

MANUAL EVALUATION OF MIL-NCE MODEL

label	Count	TP	P
PAYS ^{signary}	805	317	0.39
VENDREDI ^{signary}	439	297	0.68
CORONAVIRUS ^{signary}	307	186	0.61
ENTREPRISE ^{signary}	184	104	0.57
RÈGLES ^{signary}	94	48	0.51
CRÉER*	89	40	0.46
VÉLO*	39	19	0.49
AVORTEMENT*	8	1	0.13
COVID ^{signary}	5	2	0.4
RWANDA ^{signary}	4	0	0
MALIEN ^{signary}	3	0	0
IRLANDE ^{signary}	2	1	0.5
total	1,977	1,015	0.51
VACUNA	129	11	0.09
DISCAPACIDAD	112	6	0.05
OLÍMPICOS	107	9	0.08
FRANCIA	100	11	0.11
total	448	37	0.08

ANNOTATIONS AFTER REFINEMENT

LSF: 25k occurrences spreads in 2k classes
LSM: 1k occurrences spreads in 41 classes.

LSM VS LSF



Figure 2: UMAP visualization of word-level embedding centroids for LSM and LSF. Lines connect equivalent labels across languages.

CONCLUSION

- Promising results for automatic **sign extraction** from continuous corpora.
- **Stronger performance on LSF**, where subtitles are closely aligned with signing.
- **LSF-LSM** comparison suggests shared visual patterns, but larger balanced data is needed.

REFERENCES

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- Julie Lascar, Michèle Gouiffès, Annelies Braffort, and Claire Danet. 2024. Annotation of LSF subtitled videos without a pre-existing dictionary. In Proceedings of the LREC-COLING 2024 11th Workshop on the Representation and Processing of Sign Languages: Evaluation of Sign Language Resources, pages 204–212, Torino, Italy. ELRA and ICCL.