

OBJECTIVE

Can sign language recognition models detect **elements of spatial referencing**, despite their **underrepresentation** in popular training datasets?

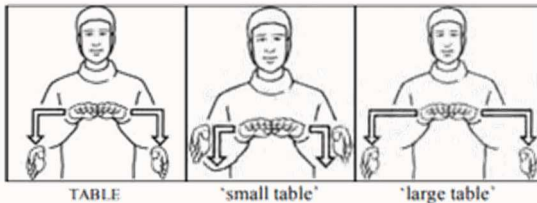
MOTIVATIONS

- Existing SLR systems predominately focus on Fully Lexical Signs (FLS), but...
- Contextual & grammatical information such as Spatial Referencing is heavily conveyed through **Partially Lexical Sign (PLS) types**

Pointing Signs



Depicting Signs



METHODS

PHASE 1: LITERATURE REVIEW

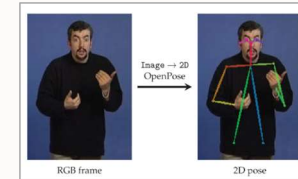
Key contributors to poor recognition of spatial referencing elements:

- PLSs are underrepresented in popular training datasets
- Even though PLSs appear in natural dialogue as often as 1:4 to 4:1 (PLS:FLS)!
- PLSs derive meaning from context – challenging for SLR systems

PHASE 2: SIGN CATEGORISATION FRAMEWORK

British Sign Language Corpus: shares roots with Auslan

- Adapted categorisation framework originally trained in French LSF (DictaSignV2 dataset) to test if PLSs can be identified in BSL content – specifically, using PLS-rich narrative-style videos



Pose Estimation

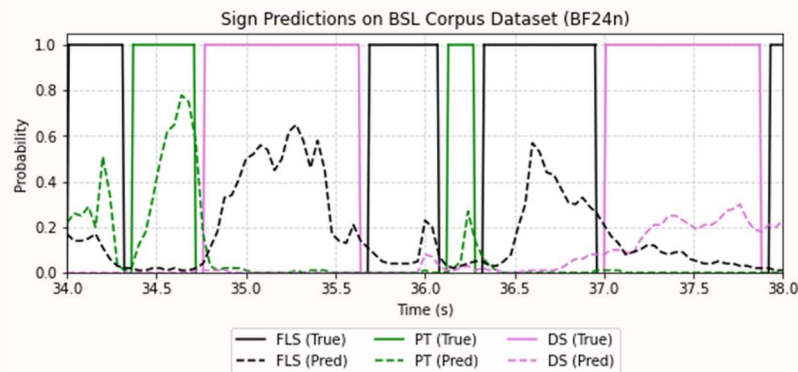


RNN Model

FLS: 0~1
Pointing Sign: 0~1
Depicting Sign: 0~1
Floating Buoy: 0~1

Predictions

RESULTS



"I walked around and saw to my surprise that the cards that had been on the kitchen windowsill had all fallen off"

	DSV2	BSL
FLS	0.54	0.52
PT	0.15	0.12
DS	0.30	0.14
FBuoy	0.10	0

Table 1. F1 Score comparison between datasets (higher is better)

CONCLUSIONS

Spatial referencing can be detected!

But still much room for improvement

FUTURE WORK

- Retrain model using Auslan
- Explore alternative pose estimation tools (i.e. better handle motion blur)
- Explore application to Sign Language Translation