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Digital tools for sign language research: towards recognition and comparison of lexical signs

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Digital Tools for Sign Language

Research:

Towards Recognition and Comparison of Lexical
Signs

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Digital Tools for Sign Language
Research:
Towards Recognition and Comparison of Lexical
Signs

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These trees don't take comfort in less sky,
these rocks don't take comfort under foreigners' footsteps,
these faces don't take comfort except in the sun,
these hearts don't take comfort except in justice
- Yiannis Ritsos

To the dew and freedom.

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List of Abbreviations

Abbreviation	Definition
ANN	Artificial Neural Networks
ASJP	Automated Similarity Judgment Program
ASL	American Sign Language
AUC	Area Under the Receiver Operating Characteristics
AUTSL	Ankara University Turkish Sign Language Dataset
BLSTM	Bidirectional Long-Short-Term Memory
CART	Classification And Regression Tree
CNN	Convolutional Neural Network
CSLR	Continuous Sign Language Recognition
CTC	Connectionist Temporal Classification
CV	Computer Vision
DBSCAN	Density-Based Spatial Clustering of Applications with Noise
DGS	German Sign Language
DTW	Dynamic Time Warping
GAN	Generative Adversarial Network
GBM	Gradient Boosting
GRU	Gated Recurrent Unit
GSL	Ghanaian Sign Language
HamNoSys	Hamburg Notation System
HCORF	Hidden Conditional Ordinal Random Fields
HMM	Hidden Markov Model
HOG	Histogram of Oriented Gradient
IPA	International Phonetic Alphabet
LBP	Local Binary Patterns

LR	Linear Regression
LSTM	Long-Short-Term-Memory
MG	Motion Graph
MDDTW	Multi-Dimensional Dynamic Time Warping
MDN	Mixture Density Network
MPI	Max Planck Institute
MS	Microsoft
NLP	Natural Language Processing
NMT	Neural Machine Translation
NN	Neural Network
PCA	Principal Component Analysis
RCNN	Region Based Convolutional Neural Networks
RDFR	Random Forests for Regression
ReLU	Rectified Linear Unit
RF	Random Forest
RNN	Recurrent Neural Network
SL	Sign Language
SLP	Sign Language Processing
SLP	Sign Language Production
SLR	Sign Language Recognition
SLT	Sign Language Translation
SNN	Siamese Neural Network
SVM	Support Vector Machines
TAG	Tree Adjoining Grammar
UMAP	Uniform Manifold Approximation and Projection
VAE	Variational AutoEncoder
VGT	Flemish Sign Language
WLASL	Word-Level American Sign Language
WOCAL	World Congress of African Linguistics
WSS	Within Cluster Sum of Square
XGBoost	Extreme Gradient Boosting