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ACRONYMS

NLP  Natural Language Processing
NLU  Natural Language Understanding
IE   Information Extraction
QA   Question Answering
SUM  Summarization
IR   Information Retrieval
DAS-3 Distributed ASCI Supercomputer 3
SVM  Support Vector Machine
SW   Smith-Waterman
LA   Local Alignment
LCS  Least Common Subsumer
NOTATION

\(X\) an input space
\(Y\) an output space
\(h(\cdot)\) a hypothesis function
\(\mathcal{H} \) a hypothesis space
\(\mathbb{R}\) the set of real numbers
\(|S|\) cardinality of a set \(S\)
\(\cup\) union of sets
\(\emptyset\) the empty set
\(f : X \to Y\) a function \(f\) from values in \(X\) to \(Y\)
\(\text{arg max } f\) the argument for which \(f\) has its maximum value
\(I\) an identity function
\(E\) an expectation
\(x_i\) a vector
\(\mathcal{R}(\cdot, \cdot)\) a relation
\(k(\cdot, \cdot)\) a kernel function
\(l(\cdot, \cdot)\) a loss function
\(R_n(h)\) an empirical risk
\(R(h)\) an expected risk
\(e^x\) the exponential function
\(\lim_{x \to \infty} f(x)\) the limit of \(f\) as \(x\) tends to infinity
\(d(\cdot, \cdot)\) a substitution score
\(g(\cdot)\) a gap function
\(\pi\) an alignment
\(s(x, x', \pi)\) an alignment score for two sequences \(x\) and \(x'\) given an alignment \(\pi\)
\(G\) a gap value
\(\beta\) a scaling parameter
\(\inf(S)\) infimum or greatest lower bound of a subset \(S\)
\(O(n)\) time complexity of an algorithm