

LIST OF SYMBOLS AND ABBREVIATIONS

Symbols

A_i	-	Accuracy of i^{th} class
A_h	-	Activation function of hidden layer node
A_o	-	Activation function of output layer node
θ	-	Angle between Document vector and query vector
M_{ij}	-	Connection Weight between i and j
X_{ij}	-	Correlation value of CT_i and CT_j
D_j	-	Document j
\vec{d}_i	-	Document Vector
$\vec{cv}_i \cdot \vec{cv}_j$	-	Dot product of concept vector i and concept vector j
$E(v,h)$	-	Energy Function of visible and hidden layer
E_o	-	Error of each node in output layer
$E(D_1,D_2)$	-	Euclidean Distance between D_1 and D_2
d_{1i}	-	Feature Vector i of document 1
Df_i	-	Frequency of documents in which i occurs
$f(\sum W_i X_i)$	-	Function of Weights and inputs
q	-	Hidden Layer bias
X_h	-	Input of hidden layer node
CTF_i	-	Key Term Frequency
T_{\max}	-	Largest Posterior Probability of Topic T
σ	-	Logistic Sigmoid Function
$ cv_i $	-	Magnitude of concept vector
$MI(a,c)$	-	Mutual Information of an attribute and category c
$ c_1 \cap c_2 $	-	Number of common features in description sets c_1 and c_2
N	-	Number of Documents

β	-	Positive constant
π_i	-	Precision of i^{th} class
$P(c_i d')$	-	Probability of document d' that fits in specific class c_i
\vec{q}	-	Query Vector
ρ_i	-	Recall of i^{th} class
Δq_j	-	Revised bias value of Hidden Layer Node j
Δp_i	-	Revised bias value of Input Layer Node i
ΔM_{ji}	-	Revised Weight between Hidden Layer Node j and Visible Layer Node i
\hat{X}	-	Sense with Maximum Weight
CT_i	-	Significant feature i of Patent document
T_o	-	Target value set at output layer
T_i	-	Topic i
p	-	Visible Layer Bias
$w[i][h]$	-	Weight connected between input layer node i and hidden layer node h
W_{ij}	-	Weight of the Term i in Document j

Abbreviations

ANN	-	Artificial Neural Networks
BOW	-	Bag of Words
CNN	-	Convolution Neural Networks
DBN	-	Deep Belief Network
DCT	-	Discrete Cosine Transform
DNN	-	Deep Neural Networks
DR	-	Dimensionality Reduction
DTM	-	Document Term Matrix
ESDL	-	Enriched-Semantic Deep Learner

FE	-	Feature Extraction
FN	-	False Negative
FP	-	False Positive
FS	-	Feature Selection
GA	-	Genetic Algorithm
HMM	-	Hidden Markov Models
HRT	-	Hypernym Radix Tree
IG	-	Information Gain
IPC	-	International Patent Classification
IPR	-	Intellectual Patent Rights
IR	-	Information Retrieval
k-NN	-	k-Nearest Neighbor
LDA	-	Latent Dirichlet Allocation
LSA	-	Latent Semantic Analysis
LTM	-	Latent Topic Modeling
NB	-	Naive Bayes
NLP	-	Natural Language Processing
NN	-	Neural Networks
ODP	-	Open Directory Project
PCA	-	Principal Component Analysis
PLSA	-	Probabilistic Latent Semantic Analysis
PMI	-	Point-wise Mutual Information
RBM	-	Restricted Boltzmann Machine
RNN	-	Recurrent Neural Networks
SDL	-	Semantic Deep Learner
SMV	-	Semantic Model Vector
SVD	-	Singular Value Decomposition
SVM	-	Support Vector Machine

TC	-	Topic Classification
TF-IDF	-	Term Frequency- Inverse Document Frequency
TN	-	True Negative
TP	-	True Positive
UMLS	-	Unified Medical Language Systems
VSM	-	Vector Space Model
WIPO	-	World Intellectual Property Organization
WSD	-	Word Sense Disambiguation
XML	-	Extensible Markup Language
YAGO	-	Yet Another Great Ontology