

Glossary

Glossary Revision History

The table notes major changes between revisions. Minor changes such as small clarifications or formatting changes are not noted.

Version	Date	Changes	Principal Author(s)
0.4		Initial release	NA

Glossary

AND: (see *intersection*)

Binary vector: An array of bits. SDRs are represented as binary vectors.

Bit: A single element of an SDR. Can be in either ON (1) or OFF (0) states.

Encoder: Converts the dative format of data into an SDR that can be fed into an HTM system.

False negative: A result that is incorrectly predicted as negative.

False positive: A result that is incorrectly predicted as positive.

Hierarchical Temporal Memory (HTM): A theoretical framework for both biological and machine intelligence.

HTM learning algorithms: Describes the set of algorithms in HTM.

Intersection: Of two sets A and B, the intersection is the set that contains all elements of A that also belong to B, but no other elements; the AND operation, denoted $A \cap B$.

Noise: Meaningless or corrupt data. In SDRs this manifests as randomly flipped ON and OFF bits.

NuPIC: Numenta Platform for Intelligent Computing. An open-source community working on HTM.

OR: (see *union*)

Sparse distributed representation (SDR): Binary representations of data comprised of many bits with a small percentage of the bits active (1's). The bits in these representations have semantic meaning and that meaning is distributed across the bits.

Sparsity: In a binary vector, the ON bits as a percentage of total bits.

Spatial Pooler: One of the HTM learning algorithms. In an HTM region, the Spatial Pooler learns the connections to each column from a subset of the inputs, determines the level of input to each column and uses inhibition to select a sparse set of active columns.

Temporal Memory: Learns sequences of patterns over time, and predicts the next pattern as an SDR at the level of cells in columns.

Temporal Pooler: One of the HTM learning algorithms. The Temporal Pooler groups together SDRs that are predictable by the lower layer, forming a single representation for many different SDRs.

True positive: A result that is correctly predicted as positive.

True negative: A result that is correctly predicted as negative.

Union: The union of two sets A and B is the set of elements which are in A, in B, or in both A and B; the OR operation, denoted $A \cup B$.

Vector cardinality: The number of non-zero elements in a vector, or the l_0 -norm.

Vector size: Number of elements in a 1-dimensional vector.