Mike Hahn – hahnbytes@gmail.com

Vecsyma

Vecsyma is a minimalist approach to the thorny AI problem of imbuing a computer with common sense: VECSyma is short for Vertices, Edges, and Character Streams. The Vecsyma engine is based on the software version of the brain of a toddler and of older children/teens. Vecsyma has 2 senses (inputs) and 2 ways of affecting its digital environment (outputs). Its primary sense is a stream of printable ASCII characters and its secondary sense is a grid of vertices connected by edges: straight lines and diagonal lines.

- The number of vertices per row is odd, so is the number of vertices per column. Each vertex has 2 bytes, the primary byte determines up to 8 edges connected to that vertex, and the secondary byte masks out edges which are not allowed. For instance, every other vertex has only 4 allowable straight lines (and no diagonal lines) connecting to it, and border vertices have fewer than 8 allowable edges connecting to them.

Its primary output is a stream of printable ASCII characters, and its secondary output is the ability to toggle bits in the primary bytes in its grid of vertices. Both character streams have a state (on or off). The input state when activated indicates that the human/digital teachers are talking to Vecsyma; the output state when activated indicates that Vecsyma is talking back to them.

Vecsyma is based on neural networks such as machine learning or a software version of the human brain, which can be encoded in software as more and more knowledge is accumulated about how the brain works. The English language and its grammar is not hard-coded into Vecsyma, rather it learns what various words mean and how to form sentences automatically, just like a toddler. If you are interested in how the brain works, I recommend reading *On Intelligence* by Jeff Hawkins. The concepts he explores just might be suitable candidates for the very foundation of Vecsyma and how it makes sense of the world.

If Vecsyma is successful, it can eventually become the foundation of a system which has common sense just like a human, by feeding it knowledge about the world inhabited by humans. That knowledge requires machine vision and speech recognition, not just character streams and a grid of vertices and edges. Follow the Chissware link for more info on this topic.

CHISSWare

CHISSWare stands for Computerized Human Intelligence Simplified in Soft-Ware: a hypothetical project based on Vecsyma. It is powered by the hierarchical model of how the brain works (the cerebral cortex) described in the book *On Intelligence* by Jeff Hawkins. VECSyma stands for Vertices, Edges, and Character Streams. Chissware sees using a grid of vertices connected by horizontal, vertical, and diagonal edges. Half of the vertices are each connected to 8 adjacent vertices (including 4 using diagonal edges), and the other half are connected to 4 adjacent vertices (w/o any diagonal edges). Chissware paints by toggling edges on and off. Chissware moves the mouse by moving it along edges in order to select the current vertex. Chissware hears using a stream of printable ASCII characters. Chissware talks by outputting a stream of printable ASCII characters. Every word consists of one or more syllables, or sequences of alphanumeric characters, separated by a single symbol character (not a space or alphanumeric character). Every vertex is associated with an optional string of printable ASCII characters of no more than 256 characters. The tilde character (~) has special meaning: followed by a sequence of letters, the tilde indicates a markup code such as bold or list item. Followed by some other character, the tilde closes the previously unclosed tilde-markup code. To escape the tilde character, use ~t~.