

Mapping worm neurons to learn more about human memory

Although memories seem ethereal, scientists believe that they may be stored in the connections between neurons called synapses. In theory, a map of a person's brain charting the location of each neuron and synapse could be a record of memories spanning a lifetime. Having such a map, known as a connectome, would transform our understanding of the human brain and consciousness

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Eugene Lee is toiling in a windowless room — part laboratory, part library — on the campus of the Massachusetts Institute of Technology. Lee, a Ph.D. candidate in the Department of Brain and Cognitive Sciences, has spent the past four years working with the connectome of worms. It is a project that, while lacking the grandeur of mapping the human connectome, could answer a fundamental question: How do animals learn?

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The worm's connectome — which was first mapped 30 years ago — tells him which nerve cells, amid the otherwise indecipherable tangles of neurons strung across the worm's body, could be working together during the learning process. But only by teaching them to respond to stimuli can he understand how information actually flows through the nervous system.

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Like Lee meticulously training his worms in the deep of night, neuroscientists believe that the incremental process of mapping the brain neuron by neuron will result in a breakthrough.

Read full, original post: [In lofty quest to map human memories, a scientist journeys deep into the mind of a worm](#)