Sejnowski Elected to Institute of Medicine

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The Institute of Medicine announced today the election of a new member, Terrence J. Sejnowski, Ph.D., professor of biology and neurosciences at the University of California, San Diego, whose work uses computational models to understand the principles that link brain to behavior.

Sejnowski directs the Institute for Neural Computation and co-directs the Temporal Dynamics of Learning Center at UC San Diego. He is also an investigator with the Howard Hughes Medical Institute and the Francis Crick Professor at The Salk Institute for Biological Studies where he directs the Computational Neurobiology Laboratory and the Crick-Jacobs Center for Theoretical and Computational Biology.

"Terry Sejnowski has been instrumental to creating the field of computational neuroscience," said Steven Kay, Dean of the Division of Biological Sciences at UC San Diego. "His work has led to new understanding of how the brain synthesizes and stores information and has contributed to the strong program in neurobiology here at UCSD."

One focus of Sejnowski's work is to understand how the brain represents the world with information stored in neurons distributed across the brain and how new representations are formed through learning algorithms, which are rules for changing the strengths of connections between neurons. He has created computer models of networks of neurons to explore the mechanisms underlying attention in the awake brain and brain rhythms in the sleeping brain and the links between them. These models also help explain how epilepsy arises from imbalances in brain circuits.

Sejnowski's laboratory has developed new ways of analyzing the sources of electrical and magnetic signals recorded from the scalp and the signals picked up by functional magnetic resonance imaging (MRI) of the brain that are used routinely by laboratories throughout the world to study normal and abnormal brain function.

Sejnowski is also a fellow of the American Association for the Advancement of Science and has received many honors, including the Wright Prize for interdisciplinary research from Harvey Mudd College, the Hebb Prize and the Neural Network Pioneer Award from the Institute of Electrical and Electronics Engineers. He has published over 300 scientific papers and 12 books, including *The Computational Brain*, with UC San Diego professor of philosophy, Patricia Churchland.

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