First Winners of new $100k Mathematical Neuroscience Prize Announced by Israel Brain Technologies

Professors Larry Abbott and Haim Sompolinsky Awarded 1st International Mathematical Neuroscience Award for Outstanding Work in Brain Modeling.

Professors Haim Sompolinsky (ELSC, The Hebrew University of Jerusalem) and Larry Abbott (Columbia University) have been awarded the 1st Annual Mathematical Neuroscience Prize by Israel Brain Technologies (IBT). The two $100,000 prizes were awarded at the 1st annual BrainTech Israel 2013 Conference in Tel Aviv.

IBT's Mathematical Neuroscience Prize honors researchers worldwide who have significantly advanced our understanding of the neural mechanisms of perception, behavior and thought through the application of mathematical analysis and theoretical modeling.

Professor Haim Sompolinsky has pioneered the field of computational neuroscience. He specializes in building mathematical models that describe the collective behavior and the informational processing in neural circuits in the brain. The principles that emerge from Professor Sompolinsky's work contribute to our understanding of the system-wide failures that take place in brain diseases, from epilepsy to psychiatric disorders.

"Computational neuroscience is a vibrant and ambitious field that uses mathematical theories and models to cope with the most daunting challenges - from answering fundamental questions about the brain and its relation to the mind to answering questions posed by the quest to heal the brain's debilitating diseases," said Sompolinsky.

Professor Larry Abbott, Bloor Professor of Theoretical Neuroscience at Columbia University, has developed models ranging from the level of neurons and synapses to large-scale networks. In particular, he has shown how plasticity mechanisms that change the properties of neural circuits can maintain their proper operation and allow them to change during the learning process.

"The goal of theoretical neuroscience is to explain how the myriad processes going on in the brain and their countless details combine in a coherent way to provide a holistic perception of the world, to support rational thought and to guide skillful actions," said Abbott.

Nobel Laureate Professor Bert Sakmann, inaugural Scientific Director of the Max Planck Florida Institute, presented the awards at the conference. "This prize honors the founders of mathematical neuroscience, and is a milestone because it gives due recognition to this field," said Sakmann.
In the future, the Prize Selection Committee will consist of previous prize winners. Abbott and Sompolinsky will consequently join the Prize Selection Committee in the coming years.

"This prize recognizes leaders in the important field of mathematical neuroscience, whose advances support our ultimate quest to find new solutions for the betterment of all humankind," said Miri Polachek, Executive Director of IBT.

IBT's BrainTech Israel 2013 Conference is exploring developments in brain technology and their commercialization through a "meeting of the minds" including government leaders, entrepreneurs, researchers, leading companies and investors from Israel and around the world.

*left to right: Bert Sakmann, Haim Sompolinsky, Larry Abbott and Rafi Gidron. photo: Chen Galili*

*With President Shimon Peres*