August 14, 2012 (Wednesday)

9:30 am

Seminar Room 1 (#01-06)

Center for Life Sciences (CeLS)

28 Medical Drive

National University of Singapore

Singapore 117456

Somatosensory Brain-Machine Interface (BMI)

Jose C. Principe

Distinguished Professor of Electrical and Biomedical Engineering, University of Florida

In the future use of Brain Machine Interfaces (BMIs) it will be important to bring to the subject the feeling of touch when the robotic device grabs an object in the external world under the brain control of the subject. We are now developing the modeling and signal processing infrastructure to implement a somatosensory BMI by stimulating the thalamus and producing in the primary sensory-motor cortex a response that mimics the normal stimulation felt by the subject. This talk will present the adaptive inverse control scheme and the spike kernel models that we are developing and some preliminary results.

Jose C. Principe is Distinguished Professor of Electrical and Biomedical Engineering at the University of Florida, Gainesville, where he teaches advanced signal processing and machine learning. He is BellSouth Professor and Founding Director of the University of Florida Computational Neuro-Engineering Laboratory (CNEL). His research interests are centered in advanced signal processing and machine learning, Brain Machine Interfaces and the modeling and applications of cognitive systems. He has authored 5 books and more than 200 publications in refereed journals and book chapters, and over 450 conference papers. He has directed 65 Ph.D. dissertations and 67 Master's theses. Dr. Principe is an IEEE and AIMBE Fellows a recipient of the INNS Gabor Award, the IEEE Engineering in Medicine and Biology Society Career Achievement Award, the IEEE Computational Intelligence Society Neural Network Pioneer Award, and Honorary doctor degrees from Universita Mediterranea, Italy, University of Maranhao Brasil, and Aalto University, Finland. He is Editor in Chief of the IEEE Reviews on Biomedical Engineering, Past Editor-in-Chief of the IEEE Transactions on Biomedical Engineering, current ADCOM member of the IEEE CIS society, IEEE Biometrics Council, and IEEE BME society, member of the Technical Committee on Machine Learning for Signal Processing of the IEEE Signal Processing Society; member of the Executive Committee of the International Neural Network Society, and Past President of the INNS. He is also a former member of the Scientific Board of the Food and Drug Administration, and a member of the Advisory Board of the McKnight Brain Institute at the University of Florida.

Professor Principe will also be speaking at NTU on:

August 13 at 2:30 pm on "On-Line Kernel Learning".

Venue: Executive Seminar Room, S2.2-B2-53, School of Electrical and Electronic Engineering, Nanyang Technological University.

(Jointly organized by SINAPSE at NUS and IEEE Engineering in Medicine and Biology Society Singapore Chapter, Sponsored by IEEE Computational Intelligence Society under Distinguished Lecturer Program, IEEE Engineering in Medicine and Biology Society Singapore Chapter, IEEE Computational Intelligence Society Singapore Chapter, and IEEE Singapore Section)