

VINCENT MEYER COLLOQUIUM

Professor Jean-Jacques Slotine



Professor Jean-Jacques Slotine received his Ph.D. from MIT in 1983 (at age 23), worked at Bell Labs in the computer research department, and in 1984 joined the faculty at MIT, where he is now Professor of Mechanical Engineering and Information Sciences, Professor of Brain and Cognitive Sciences, and Director of the Nonlinear Systems Laboratory. His main research interests are in robotics, nonlinear dynamics, and systems neuroscience. He is the author of several text books, including the classic Applied Nonlinear Control which has been translated to several languages.

Prof. Slotine's lab studies general mathematical principles of nonlinear system stability, adaptation, and learning, and how they apply to robots and to models of biological control. It is particularly concerned in how stability and performance constraints shape system architecture, representation, and algorithms in robots, and in whether similar constraints may in some cases lead to similar mechanisms in biological systems.

Collective computation in nonlinear networks and the grammar of evolvability

Wednesday, March 25 ■ 12:30 ■ Meyer Bldg., Auditorium 1003

[Refreshments at 12:30, the lecture will start at 12:45]

Abstract: Computation, synchronization, and measurement are key issues in complex networks. Vast nonlinear networks are encountered in biology, for instance, and in neuroscience, where for most tasks the human brain grossly outperforms engineered algorithms using computational elements 7 orders of magnitude slower than their artificial counterparts. We show that nonlinear dynamic systems analysis tools yield simple but highly non-intuitive insights about such issues, and that they also suggest systematic mechanisms to build progressively more refined networks and novel algorithms through stable accumulation of functional building blocks and motifs.

Professor Slotine will also deliver the Jury Lecture

Contraction analysis of nonlinear dynamical systems

Monday, March 23 ■ 11:30 ■ Room 861

[Refreshments at 11:15]

For further information see:

<http://webee.technion.ac.il/Academics/Vincent-Meyer-Colloquium>

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