



The Lynne and William Frankel Center
for Computer Science
Department of Computer Science
Ben Gurion University of the Negev

Tel:08-6428032 Fax:08-6429021
fradmin@cs.bgu.ac.il



Distinguished Lecturer Series



Prof. Naftali Tishby

Hebrew University of Jerusalem

Balanced information flow in sensing and acting – the fundamental principle of adaptive behavior

Living organisms and intelligent agents are characterized by the flow of sensory information from a stochastic environment and the value of their decisions and actions. We first argue that the future value can be related, in Partially Observed Markov Decision Processes (POMDP), to the information needed for controlling the process. This leads to a simple relationship between sensory information, control information and reward rate, which completely characterizes metabolic information processing. Next, we argue that efficient planning and learning are related to the predictive information (mutual information between past and future) of the environment. We further argue that the sub-extensive nature of predictive information is responsible for the emergence of hierarchies and reverse hierarchies in planning and perception, the fundamental building blocks of cognition..

Prof. Naftali Tishby is a professor of Computer Science and the director of the Interdisciplinary Center for Neural Computation (ICNC). He is holding Ruth and Stan Flinkman Chair for Brain Research at the Edmond and Lily Safra Center for Brain Science (ELSC) at the Hebrew University of Jerusalem. He is one of the leaders of machine learning research and computational neuroscience in Israel and his numerous ex-students serve at key academic and industrial research positions all over the world. Prof. Tishby was the founding chair of the new computer-engineering program, and a director of the Leibnitz research center in computer science, at the Hebrew University.

12:00-13:00 on Wednesday, 17 April, 2013—Saal Auditorium, Alon Bldg (37/202)
(202/37) בננין אלון סאל, באודיטוריום סאל, בבנין אלון (202/37) 12:00-13:00 יום ד', 17 באפריל - 2011 באודיטוריום סאל, בבנין אלון (202/37)