אוניברסיטת חיפה
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החוג לניהול מידע וידע
The Department of Information and Knowledge Management

הפקולטה לניהול
Faculty of Management

The Faculty of Management
The Department of Knowledge and Information Management
Invites you to attend a seminar

Dissecting information processing algorithms in human choice behavior

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Monday, January 23th at 14:30 pm
Jacobs Building, room no. 506

Abstract

The brain is a highly complex information processing apparatus evolved to produce goal directed behavior. The mechanism responsible for choosing the most appropriate behavior given the available information has been subjected to decades of scientific scrutiny. It is now widely accepted that the brain accumulates samples of information over time until a criterion amount of evidence is obtained – at which time the course of action best supported by the evidence is executed. Information economy, in turn, is managed by controlling the criterion which allows for a tradeoff between the time devoted to information accumulation and the accuracy of the choice. This, sequential sampling approach to modeling behavioral choices departs from the mainstream approach where only minimal amounts of data are considered (choice proportions and occasionally correct response times), and allows for modeling vast amounts of multidimensional distributional data. However, the algorithm underlying this process remains largely unknown and is subject to ongoing dispute. In this spirit, many theoretical principles (and models thereof) have been proposed that all seem to capture the main empirical findings to date. In this talk I will present an integrated theoretical, computational and experimental approach to the study of information processing principles in the brain. Models representing different theoretical principles are pitted against each other in a series of computational studies leading to precise quantitative and qualitative predictions. Then, careful, theoretically motivated "strong inference" experimental design (Platt, 1964), is used to reject entire classes of models by separately targeting individual information processing principles. Implications of the results of this series of studies to the field are discussed and future plans for the application of this approach are outlined. Importantly, by accessing and utilizing big datasets the above approach opens new frontiers for integration with machine learning methods. The talk will end with a discussion of potential benefits of computational cognitive modeling to machine learning and vice versa.

All Are Welcome

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