



We are happy to announce the following faculty seminar at  
the Graduate School of Business Administration

Speaker:

**Dr. Amos Azaria**  
Carnegie Mellon University (CMU)

Title:

***Intelligent and Instructable Agents***

**Abstract:**

Unlike traditional machine learning methods, humans often use natural language instruction as one form of learning. It is very common for one person ("teacher") to explain to another ("student") how to perform a certain action using natural language. If the student understands the explanation and each of the sub-actions associated with the full action, he or she is likely to be able to perform this action. A smart student should be able to generalize the given example, and perform actions which are similar to it. In my talk I will introduce a pioneering platform which allows teaching an intelligent agent using natural language. A user explains step by step how to implement a new command (e.g. forwarding an email to a Alice), and the agent is able to generalize and later execute this command with different parameters (e.g. forward a different email to Bob). I will show how users use the system.

I will briefly mention exciting current work which involves using the system to create rules (such as "set my alarm 10 minutes earlier if you notice that it snowed during the night"). I will also discuss some of my PhD dissertation work involving agents providing advice to humans. Namely, I will introduce a Social agent for Advice Provision (SAP) that provides an advice that maximizes a social utility function which is a weighted sum of the agent and human's utilities. In order to determine the weights, SAP models the human choice selection procedure and uses the model to run simulations of repeated human-agent interaction to identify the weights that maximizes the agent's utility over time. The proposed human model is based on a hyperbolic discounting model of human behavior that its parameters are learned from data. For evaluation purposes, I also consider several other models of human behavior in selection processes that are also informed by behavioral economic theories of people's play in repeated interactions. These models were incorporated into several agent designs to repeatedly generate offers to people. These agents were compared to SAP in extensive empirical studies involving hundreds of human subjects showing that SAP yields the highest agent's utility. SAP superiority was consistent in two domains that differed in the information that is available to the participants and in the possible order among the actions which the participants may perform and in the complexity of the state space.

**Short Bio:** Amos Azaria is a Postdoctoral Fellow in Carnegie Mellon University (CMU) with the Machine Learning Department, Pittsburgh, PA, USA. He received the B.A. degree in computer science from the Technion Institute of Technology, Haifa, Israel, in 2004 and the PhD degree from Bar Ilan University, Ramat Gan, Israel in 2015. After completing the Bachelor's degree he spent several years in the industry, some of which included working with Microsoft R&D Haifa, Israel. His research interests include human-agent interaction, machine learning and natural language processing.

**Tuesday, December 15 , 2015, 11:00 Seminar room (11), Building (504)**