PROJECT REPORT

Khyati Sharma, Indian Statistical Institute, did a summer project (May'2014-June'2014) at the University Of Groningen, Netherlands under Prof. Rineke Verbrugge and Dr. Sujata Ghosh

An experiment was conducted at the University Of Groningen, Netherlands in 2013 to study the backward and forward induction behavior in extensive form perfect information games. Subjects played a perfect information game against computer and knew the fact that the computer is optimizing against some belief about their future strategy.
The data we collected involves study field and gender of the subject. This information is in addition to the data on choices made at each decision node for the player.
I have done the following work during my visit to the University of Groningen in May, 2014.

- Segregation of subjects based on the discipline they study and then analyzing the subjects belonging to a particular discipline of study. This was done by observing the choice made by the player and whether that choice indicates a forward or backward induction behavior. Then we tested whether there is any significant difference in subjects opting for one choice than the other. This was done using independent two sample proportion test, one sample proportion test (parametric) and in some cases Mann Whitney U test (non-parametric). Also the correlation of this behavioral trait with the discipline of study was calculated along with the test of its significance.
- The above segregation of subjects was done on the basis of gender as well and a similar analysis as explained above was carried out. This enabled us in understanding which particular behavioral trait (forward or backward) is preferred by males and females.
- Some additional traits in the participants' behavior e.g. competitiveness, which involved investigations on the final outcome as well as the information given by the participants on their thoughts about the computer's behavior, were analyzed. This was done by performing one sample proportion test in order to analyze whether the proportion of people opting for a choice indicating competitive behavior are more or not. Suitable correlation coefficients were also calculated.
- Latent Class Analysis: The aim was to understand and explore the behavior of subjects within these classes.