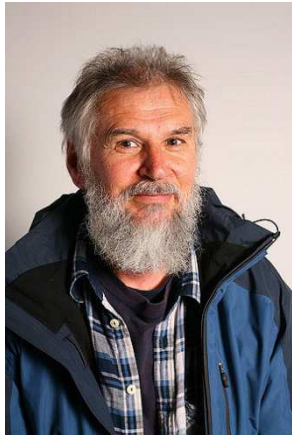


KEYNOTE SPEAKER



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Topic:

Network choice theory

Abstract:

The problem of single choice repetition from the finite set of objects $\{A, B, C, \dots\}$ has a long story. The classical choice theory, binomial and multinomial, are based on the random utility which captures the uncertainty of choosing one object among offered two or all of them. This theory depends upon the choice axiom of Luce (1959) which asserts that the probability of choosing an element does not depend upon the context of choosing. Network choice theory describes what happens when this axiom is not satisfied.

The simplest version of the individual choice network model represents the objects as the nodes in the graph and the oriented edges capture the frequency of choosing the elements from the offered pair. For instance, if $A:B = 3:2$ is the relative ratio of probabilities of choosing A and B when $\{A,B\}$ is offered, this ratio generates a multi-graph with parallel edges: one from B to A with weight 3, and the other one from A to B with weight 2. The situation may be more complicated if the ratios of $A:B:C$ or $A:B:C:D$ are offered. Even in the case of sparse network the probability distribution may be calculated.

Potential method (PM), developed by the author, gives the probability of choosing each element after solving Laplace equation of the given graph. The graph is consistent if and only if the axiom of Luce is satisfied. Some examples of the choice network will be presented and solved by the PM-software.

Group networks may be analysed by cluster analysis after defining a suitable distance of the individual networks.

Possible applications with a little modification are: consumption, survey analysis, social sciences.