



Pozivamo vas na dva predavanja na temu probabilističkih grafičkih modela koje će prezentirati dr. sc. Velimir Ilić, znanstveni suradnik Matematičkog instituta Srpske akademije nauka i umetnosti (SANU) i suradnik u nastavi Prirodno-matematičkog fakulteta Univerziteta u Nišu.

Naslov predavanja: *Probabilistic graphical models - basic properties and applications*

Vrijeme i mjesto: četvrtak, 5. rujna, od 10:00, predavaonica U9

Sažetak predavanja: *Probabilistic graphical models were independently invented and widely used in different scientific disciplines such as artificial intelligence, statistics and signal processing. Using graphical models, the structure of multivariate probabilistic distributions can be represented in elegant and efficient way which enables analysis of probabilistic dependences in the distribution. In this talk we will review basic types of probabilistic graphical models, such as Bayesian networks, Markov random fields, junction trees and factor graphs, we will explore their properties and we will review their applications in aforementioned fields.*

Naslov predavanja: *Message passing algorithms over probabilistic graphical models*

Vrijeme i mjesto: petak, 6. rujna, od 10:00, predavaonica U9

Sažetak predavanja: *The message passing algorithm (MP) is the most famous algorithm over probabilistic graphical models. The MP algorithm efficiently calculates the marginal values of a decomposable probability distribution in a manner of passing the messages over the graph which represents the distribution. In this talk we will review different variants of message passing algorithms which are usually used in artificial intelligence, machine learning and signal processing. Particularly, we will consider Pearl's belief propagation algorithm, forward-backward algorithm, Kalman filter algorithm and loopy belief propagation. The ubiquitous of MP algorithms will be demonstrated by examples of sparse graph codes decoding and computations of random variable entropy and its cross moments, which usually appears in artificial intelligence and statistics.*