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The generalized multi-dimensional platform for data array classification

Raoul R Nigmatullin
KNRTU-KAI, Russia

The author wants to pay an attention of many researches on the papers where new principles of description of random signals are formulated. The problem can be formulated as follows: Is it possible to find a regression curve of many random signals if their probability distribution function (PDF) is not known? This problem can be solved if we replace a priori supposition about PDF by some principles that can be tested and justified. All these new methods can be unified under acronym – NIMRAD-Non-Invasive Methods of the Reduced Analysis of Data. We should mark some basic references related to the NIMRAD in order to stress its applicability to a wide circle of problems that can be solved by new methods associated with quantitative description of random signals and sequences.

1. NAFASS – non-orthogonal amplitude-frequency analysis of the smoothed signals.
2. The reduced fractal model (RFM) that can be applied for quantitative description of different blow-like signals.
3. Detection of quasi-periodic processes that are described in terms of Prony decomposition.
4. FERMA (The fractional exponential reduced moments' analysis) of random sequences that generalizes the conventional data description based on the total spectrum of the fractional moments.
5. The statistics of the fractional moments and definition of the complete correlation factor based on the generalized Pearson correlation function.

These new methods can be applicable for quantitative description of different multimedia signals without a priori and specific model suppositions accepted in the conventional mathematical statistics.

renigmat@gmail.com

Multimedia communication protocols in sensors ad hoc networks

Pascal Lorenz
University of Haute Alsace, France

Ad hoc Sensor Network (ASNs) is distributed systems which consist of wireless mobile or static sensors. In order to communicate with each other, each mobile unit must act as a router and a terminal, and must retransmit packets from other mobile units. Due to their great flexibility of use, good robustness and very quick deployment, such networks can be used in many areas. The applications developed in such areas use especially multimedia and real-time data (images, video, etc.). ASN's users would like to have the same services as those offered by wired networks. In other terms, the applications used in wired networks must be functional in ASNs, especially multimedia and real-time applications (video conferencing, internet telephony, video on demand etc.). The limited sizes of the sensors make complex, the support of such applications which require significant resources like the energy, bandwidth, delay, losses rate, jitter, QoS etc. Many factors, at different levels of the network (physical, MAC, routing and transport) reduce the performance of these networks. We then see appeared specificity of some protocols such as MAC, routing and transport with the support of multimedia applications and data.

lorenz@ieee.org