Visualization of Relationships between ECG Parameters Using Optimal Lagrangian Difference Matrices

I. Timofejeva[1], A. Vainoras[2], M. Ragulskis[1]

[1] Department of Mathematical Modelling
Kaunas University of Technology
[2] Cardiology Institute, Lithuanian University of Health Sciences
inga.timofejeva@ktu.edu

A computational framework for the visualization of relationships between ECG parameters using optimal Lagrangian difference matrices is presented. Each participant's ECG (electrocardiogram) data was obtained during a bicycle ergometry exercise. A genetic algorithm optimization scheme is applied to the data in order to construct an optimal matrix describing the dynamics of the cardiovascular system during the load and recovery processes. This technique could provide valuable insight into the specific characteristics of each individual's cardiovascular system.

Analysis of Public Procurement Data Using Social Network Techniques

R. Užupytė[2,3], T. Krilavičius[1,3],

[1] Baltic Institute of Advanced Technology
[2] Vilnius University
[3] Vytautas Magnus University
ruta.uzupyte@bpti.lt

As more and more data become publicly available, the interest in extracting valuable information out of this data receives increasing attention. For each category of data, the advantages of open data analysis may be specific. In this research, we are interested in the open data of public procurement of Lithuania. Such kind of analysis may help reveal corruption and address the issues of transparency. However, the appropriate analysis technique should be carefully selected in order to obtain reliable and valuable results. In this part of the research, we focus on methods of knowledge discovery, such as social network analysis. This methodology was selected due to its ability to identify and visually represent relations among a large amount of data.