name of the unit:		symbol:
INSTITUTE OF MECHATRONICS AND INFORMATION SYSTEMS		I-25 http://www.imsi.p.lodz.pl
head of the unit:	potential promoters:	contact person:
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scope of activities:

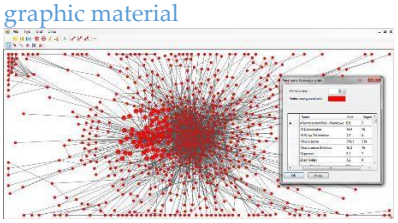
Research in the field of analytical processing of data with a poorly determined structure and network of connections.

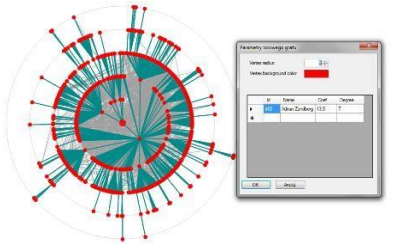
- Analysis of genomic data (DNA, RNA) on the server side of the database with the use of objects created using high-level languages;
- Medical data processing methodology using the DICOM format and protocol;
- Analysis of the network of connections and relations taking place in them, based on social networks such as Twitter;
- Analysis of emotions conveyed by various expression means

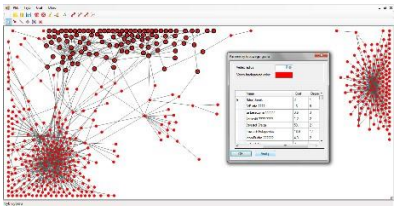
present activities:

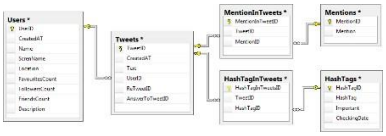
Research on social networks has gathered a very large database of actual entries (over 1 million) on Twitter about Polish political parties. The main task was to present the connections and organize the graph. Due to the number of nodes, it is necessary to filter the data, e.g. by the time frame. In addition, it is possible to determine the parameters of the entire graph or subgraphs, which allows the detection of strongly cooperating groups - e.g. trolls farms, clappers farms, etc. An important element is the analysis of the emotions associated with the message, which allows for the identification of real relationships between people (graph nodes). In the research on the analysis of DNA and RNA data, algorithms for data storage on the side of the BD server and algorithms for searching for chains in the full genome were built. They have been verified by detecting the so-called primers (promoters) in the genomic data set of selected animal species.

graphic material









Future activities:

Extending the research on the analysis of emotions carried by the message in Polish, taking into account flection. Development of methods of grouping nodes so as to maintain the nature of the relationship while limiting the network necessary for graphic presentation. Development of algorithms for determining parameters based on the content of entries and metadata describing the author, allowing for better detection of cooperatives working in the network. The division of the graph into subgraphs, which minimizes the number of "cut" edges, and at the same time preserves the relations in the parts resulting from the division.

Keywords:

graph analysis, social networks, emotion detection, semistructural data, genomic data

List of internship proposal in this research team:
List of attachments: