



The School of Electrical Engineering University of Belgrade





The School of Electrical Engineering RTI



R+D EFFORTS (RTI)



1. Education:
12 PHDs + 12 teaching assistants + 12 lab assistants
2. Research:
SRB.gov + SRB.industry + FP7 + USA industry
3. Supercomputing:
MAXELER
4. Synergy:
The Tutorial Marathon



Institutions:

School of Electrical Engineering (18) RTI

School of Mathematics (10)

School of Business Administration (4)

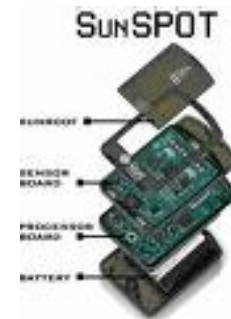
Institute Michael Pupin (2)

Mathematical Institute of the SASA (2)

The Gosa Institute (1)

Topics:

- a. Knowledge Engineering
- b. Wireless Sensor Networks
- c. Computer Architecture
- d. Knowledge Dissemination



a. Advanced Knowledge Engineering



V. Milutinovic, B. Radenkovic, G. Rakocevic, et al,
Modern Approaches to DataMining

This presentation introduces the major algorithms of datamining, gives examples, and prepares the audience for more specialized datamining-oriented presentations to follow.

A. Mihajlovic, et al,
Inputation Algorithms for DataMining

This presentation concentrates on various approaches to imputation for datamining, which resolves one of the major obstacles for efficient datamining: missing data. Examples are given related to medical mining.

A. Spasic, F. Maric, et al,
DataMining from Social Networks,

This presentation concentrates on various algorithms used for datamining from social networks, with emphasis on detection of the level of honesty, level of expertize, type of preferences, etc.

A. Kartelj, V. Filipovic, et al,
Personality Classification:
Computational Intelligence in Psychology and Social Networks,

This presentation concentrates on one important aspect of datamining from social networks, i.e. detection of human characteristics, especially the psychological characteristics.

B. Furlan, B. Nikolic, et al,
Intelligent Question Routing,

This presentation concentrates on a series of techniques that can be used to accelerate the datamining process in the context of social networks: The question routing techniques.

D. Draskovic, B. Nikolic, et al,
Mutation Approaches in Genetic Algorithms

If genetic algorithms are used for datamining, sophisticated mutation approaches are crucial, especially in mission critical applications, like business. This presentation gives a classification and examples.

V. Jelisavcic, B. Furlan, J. Protic, et al,
Topic Models and Advanced Algorithms
for Profiling of Knowledge in Scientific Papers,

If the type and quality of scientific papers have to be datamined, appropriate profiling techniques have to be used, so this presentation gives a classification thereof, followed by examples.



b. Wireless Sensor Networks (WSNs)



Z. Tafa, M. Pejanovic, G. Dimic, et al,
Advances in WSNs,

This is an introductory talk defining terms and concepts of importance for the topics to follow: deployment approaches, routing algorithms, operating systems, programming languages, and advanced applications.

N. Kojic, S. Vujicic, G. Rakocevic, D. Milicev, et al,
Datamining in wireless sensor networks (WSNs),

This presentation gives a detailed overview of various datamining algorithms for WSNs, divided into 16 different classification groups. Each group and each algorithms are presented via o/UML and pseudocode

I. Vukasinovic, G. Rakocevic, et al,
Mobile Agents for WSNs,

The mobile agent technologies for WSNs, acting on the top of the operating systems for WSNs, are presented using a comparative method. These technologies can make the datamining in WSNs much more effective.

M. Knezevic, N. Mitic, et al,
Datamining in WSNs Based on Mobile Agents,

Using all the knowledge from the previous topics, this one introduces the major notions of the agents-based datamining in WSNs, and gives an overview of the enabler technologies.

c. Computer Architecture



R. Radojicic, S. Gajin, et al,
Routing in Modern SuperComputers,

Various algorithms for routing in modern supercomputers are reviewed, with special emphasis on those of interest for implementation of the issues presented in the previously elaborated talks.

Z. Sustran, M. Valero, et al,
Split Cache Design in Modern SuperComputers,

The concept of splitting along various locality types is presented, and it is shown how such an approach can bring speedups. To illustrate the concept, various split cache design techniques are revisited.

M. Mistic, M. Tomasevic,
GPU Computing and CUDA Programming,

This is a tutorial on programming of advanced GPU and CUDA architectures, with emphasis on tools and techniques. Examples were chosen to serve as an introduction to the topics to follow.

S. Stojanovic, D. Bojic, O. Mencer, et al,
Hybrid SuperComputers

Seven different approaches to hybrid computing are presented, with special emphasis on the Maxeler dataflow supercomputing approach: concepts and applications.

Z. Babovic, I. Mencer, et al,
DataFlow Supercomputers:
The World's Best PriceEnergyPerformance Today

Details of the Maxeler approach are presented, with programming examples and programming assignments. Audience will have an opportunity to try a Maxeler simulator, and to login remotely to a Maxeler engine in Belgrade

G. Rakocevic, O. Mencer, M. Flynn, M. Valero, R. Trobec, P. Stenstrom, V. Milutinovic,
Benchmarking for SuperComputer Ranking.

Evidences are presented telling why and under what conditions the Maxeler engines are superior in comparison to the Japanese K and other highly ranked machines of the Linpack based Top 500 list.

d. Knowledge Creation and Dissemination



**V. Blagojevic, D. Bojic, M. Bojovic, S. Gajin, V. Milutinovic, et al,
How to Generate Ideas for PHD Research in Computer Science,**

A methodology is presented which defines 10 different approaches to generation of new scientific ideas. Existing highly referenced papers are analyzed in this light, which is of importance for PHD students.

**Z. Stanisavljevic, B. Nikolic, I. Tartalja, et al,
Multimedia Tools for Education**

An almost exhaustive survey of existing multimedia tools for eLearning is presented and the major examples are classified. The presentation includes also the novelties like those related to all 5 senses.

**H. Maurer, V. Milutinovic, M. Bojovic, A. Mihajlovic, V. Jelisavcic, Z. Ognjanovic
Digital Preservation of National Heritage**

A comparison of Wikipedia, Europeana, and the Forum approach is presented, and the major axiomatic advances of the Forum approach are presented, using examples from Austria Forum, Serbia Forum, and others.







Q&A



vm@etf.rs