



**JOHN ATANASOFF SOCIETY
OF AUTOMATICS AND INFORMATICS**

**JOHN ATANASOFF
CELEBRATION DAYS - 114th ANNIVERSARY**

International Conference

**AUTOMATICS AND
INFORMATICS'2017**

PROGRAM

Bulgaria, Sofia, October 4 - 6, 2017

JOHN ATANASOFF SOCIETY OF AUTOMATICS AND INFORMATICS

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JOHN ATANASOFF SOCIETY OF AUTOMATICS AND INFORMATICS
INTERNATIONAL CONFERENCE
AUTOMATICS AND INFORMATICS'2017

October 4-6, 2017, Sofia, Bulgaria

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Wednesday, October 4th
National House of Science and Technique
Sofia, 108 Rakovski Str.

12.00 Flowers for John Atanasoff

Place: [Monument of John Atanasoff](#)

4, "Gurko" Bul., Sofia

17.00 - 19.00 SCHOOL FOR YOUNG SCIENTISTS

Business Process Innovation

Place: [Hall 3](#)

Chairman: P. Ruskov

Thursday, October 5th
National House of Science and Technique
Sofia, 108 Rakovski Str.

8.30 - 16.00 Conference Registration

10.00 - 10.30 - WELCOME AND OPENING CEREMONY

Place: [Hall 4](#)

10.30 - 11.45 PLENARY SESSION

Place: [Hall 4](#)

Chairman: Acad. V. Sgurev

Milena Lazarova

Vision Intelligence and Machine Learning

Georgi Mengov

Artificial Intelligence, Neural Networks, and Natural Intelligence

Thursday, October 5th
National House of Science and Technique
Sofia, 108 Rakovski Str.

13.00 - 15.00 SESSION “COMPUTER, COMMUNICATION AND SOFTWARE SYSTEMS AND TECHNOLOGIES”

Place: **Hall 2**

Chairman: K.Boyanov

V. Aleksieva, D.Dinev

Simulation framework for realization of quality of services in LIFI network

T.Tashev, Vl.Monov, R.Tasheva

Investigation of alternative variant of mima-algorithm for crossbr switch

A.Taneva, G.Gogichev, St.Penkov

Laboratory system development for monitoring and control with web server

I.Blagoev

Methods for optimized use of computer memory during data Loads with R programming languages

M. Tsvetkov

Capabilities of the newly built integrated informational system in support of coastal zone management - iissczm

D. Ivanova, S. Zahov

Ocean big data processing in IoT ecosystem

K. Al-Barznji, A. Atanassov

Collaborative filtering techniques for generating recommendations on Big Data

13.00 - 15.00 SESSION “CONTROL THEORY”

Place: **Hall 3**

Chairman: P.Petkov

E. Nikolov

Parameterization of dynamic systems - part 1

E. Nikolov

Parameterization of dynamic systems - part 2

N. Nikolova

Exploring opportunities of repetitive systems for eliminating periodic measurement error

B. Grasiani

Discretization of fractional repetitive algorithms for the control of a pneumatic positioning device

K. Perev

Orthogonal approximation of nonlinear models described by G-functionals of Wiener

13.00 - 15.00 SESSION “CYBER SECURITY”

Place: Hall 4

Chairman: K.Alexiev

K.Raychinov, H.Valchanov

Embedded network intrusion detection and preventing system

E. Otsetova-Dudin, Iv. Kurtev

“Modsecurity” rules for web-server protection

P. Malinov, I. Kehayova, E.Doychev

Prototype of electronic testing system - structure and links

J. Guglev, St, Stoyanov

Model for representation and distribution of events in the virtual education space

T. Glushkova

Context-aware wheelchair model in an e-learning environment

S. Tavkov, I. Dimitrov

Virtual education space - vulnerability and security

13.00 - 15.00 SESSION “SIGNAL PROCESSING”

Place: Hall 105A

Chairman: Ch.Damyanov

M.Nedev, Y. Yanev

Determination of the temperature coefficient of the electrical resistance of soils in landslide areas near to Varna

R. Parvanova

Daubechies wavelets application for signals filtration

G. Georgieva-Caneva, K. Cheshmedjiev

Analysis of heart rate variability using wavelet transform

G. Georgieva-Caneva

Automatic software system for analysis of HRV data

P. Pavlova

Application of chromaticity as a space for comparing of spectral distributions

VI. Ivanov

Monitoring of urban road traffic

**15.30 - 17.30 SESSION “BIOAUTOMATICS, BIOINFORMATICS
AND BIOTECHNOLOGIES”**

Place: Hall 2

Chairman: I. Simeonov

A. Zlatkova, V. Lyubenova

Monitoring the dynamics of bioprocesses using intermediate metabolite

E. Chorukova, I. Simeonov

**Mathematical modeling of the two-stage anaerobic digestion system
with production of hydrogen and methane**

I. Simeonov, E. Chorukova, V. Akivanov, V. Lakov, S. Mihailova

Experimental pilot scale biogas plant with computer system for monitoring and control

N. Andreev, E. Sotirova, Kr. Atanassov

**Generalized net modelling of the processes of blood donation
in centers for transfusion haematology**

15.30 - 17.30 SESSION “MODELLING”

Place: Hall 3

Chairman: N. Deliiski

N. Deliiski, N. Trichkov, Z. Gochev, D. Angelski

**Computation of the Energy Needed for Warming up of the Carrying
Band of Wood Details during Their Convective Heating before Lacquering**

N. Deliiski, N. Tumbarkova

**An Approach for Computation of the Defrosting Degree of logs during
Melting of the Frozen Free Water in Them**

M. Mladenov

Predictive models for evaluation of the quality and freshness of food products

Yotsov, M. Tsvetkov, D. Dimitrakiev

An approach to oil spill movement and spreading prediction

15.30 - 17.30 SESSION “PERSONAL ASSISTANTS AND COGNITIVE ROBOTICS”

Place: Hall 4

Chairman: I. Popchev

A. Toskova

Evolutionary algorithm in simulated bipedal robot motion

M. Miteva, A. Stoyanova-Doycheva, M. Veselinova

Intelligent tourist guide

J. Todorov, V. Valkanov, I. Popchev

Intelligent personal assistant for aiding students

G. Penchev, V. Ivanova

Learning logistics assistant

St. Stoyanov, A. Toskova, J. Todorov, D. Rusev

EXPERT^L project

15.30 - 17.30 SESSION “ROBOTICS AND MECHATRONICS”

Place: Hall 105A

Chairman: A. Topalov

B. Hristov

Modelling of 5 axis Gimbal for Video capturing

A. Shamliiev

A digital pressure sensor software optimization of vertical speed estimation for unpowered aerial vehicles and gliders

D. Chikurtev, M. Groueva, N. Stoimenov

Distributed group control of mobile robots

R. Trifonov, G. Pavlova

Strategies for planning mobile robot trajectory considering its moment state and environment

R. Botsova, A. Lekova

Block-schema and algorithm for control of mechanical antropomorphic hand

D. Batchvarov, A. Boneva, Z. Ilcheva, S. Angelov , V. Ivanova

Tools for control of mechatronic objects using the wireless network stack uMAC

17.30 - 18.50 Discussion

Place: Hall 3

19.00 Cocktail

Place: Hall 2

Friday, October 6th
National House of Science and Technique
Sofia, 108 Rakovski Str.

9.00 - 10.30 SESSION “DECISION MAKING”

Place: [Hall 2](#)

Chairman: V. Sgurev

A.Pektaş, T. Acarman

Effective feature selection for botnet detection based on Network flow analysis

V. Sgurev, St. Drangajov

A method of optimal allocation of resources and risks under linear constraints

M. Vladimirov, T. Stoilov, K. Stoilova

Black-Litterman models for optimal distribution of investment resources

N. Tilyanov

Solving employee scheduling problem using constraint programming

9.00 - 10.30 SESSION “PROCESS CONTROL 1”

Place: [Hall 3](#)

Chairman: M.Hadjiski

T.Penzov, D.Marinov, D.Tsvetkov

Microprocessor system for grinding control in vertical cement mill

B.Rakov, G.Ruzhekov

TITO PID control using decoupling filter when process model is unknown

M.Hadjiski, K. Boshnakov

Optimal predictive maintenance of copper converter

9.00 - 10.30 SESSION “INFORMATION SOCIETY”

Place: [Hall 105A](#)

Chairman: G.Mengov

A. Ivanova, V. Todorov

Methodology for calculating a composite sustainability indicator of the NSI indicator system for the period 2014-2016

G. Ahmedova

Cloud computing in business organizations: a review and some development trends in EU and Bulgaria

I. Atanasov, G. Mengov

Economic agents' strategies under limited information

K. Dineva

Internet of things in help of sustainable agricultural development

Friday, October 6th
National House of Science and Technique
Sofia, 108 Rakovski Str

11.00 - 12.30 SESSION “OPTIMIZATION”

Place: Hall 2

Chairman: Stoyan Stoyanov

K. Kolchakov, V. Monov

An approach for algorithm optimization of non-conflict Schedule by diagonal connectivity matrix activation

L. Kirilov, V. Guliashki, D. Keremedchiev

A method for solving flexible job shop problems with multiple objectives

V. Lakov, I. Simeonov

Comparative study of algorithms for extremum seeking control of organic waste anaerobic digestion processes

K. Pavlova, T. Stoilov

Application of bi-level optimization for increase of rail public transportations

11.00 - 12.30 SESSION “PROCESS CONTROL 2”

Place: Hall 3

Chairman: K. Boshnakov

Nachev, T. Titova, T. Stoyanchev, St. Atanasova, Ch. Damyanov

„Electronic nose“ technology for monitoring the quality of chicken meat

D. Ivanova St. Gyoshev

Research of the generated heat during the treatment of metal samples

M. Kandeve D. Karastoyanov, B. Popov

High-technological composite coatings applied using high velocity oxy-fuel (HVOF)

V. Dimitrov

Information-management system for energy process control in business center

11.00 - 12.30 SESSION “e-LEARNING”

Place: Hall 105A

Chairman: I. Bachkova

Al. Petrov, A. Petrov, M. Veselinova

Augmented reality. Creating a virtual world for educational purposes

I. Velcheva, K. Garov

Group and team work in informatics and information technology training

V. Terzieva, E. Paunova-Hubenova, P. Kademova-Kazarova

Educational games in Bulgarian schools

E. Paunova-Hubenova, V. Terzieva, J. Boneva, St. Dimitrov

Learning data analytics for ICT resource integration in Bulgarian schools

D. Grigorova

Combined approach to students' assessment

Friday, October 6th
National House of Science and Technique
Sofia, 108 Rakovski Str.

12.30 – CLOSING the Conference
Place: [Hall 3](#)