



**JOHN ATANASOFF SOCIETY
OF AUTOMATICS AND INFORMATICS**

International Conference

AUTOMATICS AND INFORMATICS'2019

PROGRAM

Bulgaria, Sofia, October 3- 5, 2019

JOHN ATANASOFF SOCIETY OF AUTOMATICS AND INFORMATICS

Secretariat Adress

Bulgaria

1000 Sofia

108 Rakovsky str.

Tel. (+359 2) 987 61 69

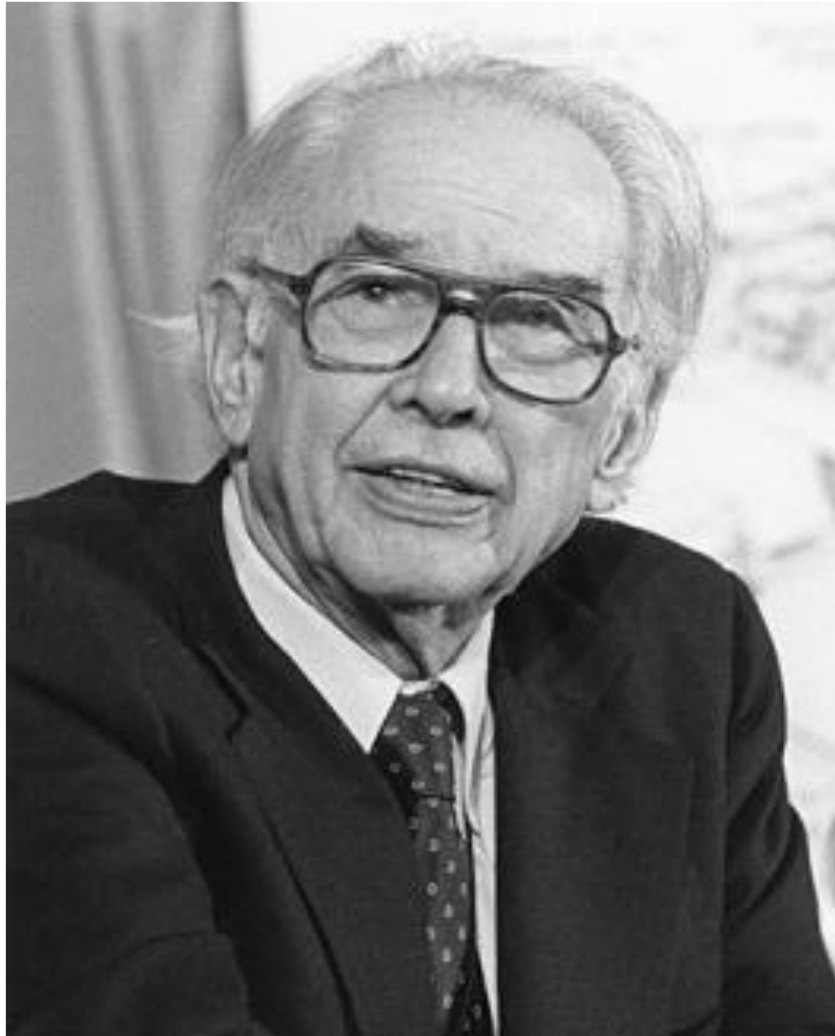
e-mail: sai.bg.office@gmail.com

www.sai.bg



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**JOHN ATANASOFF SOCIETY OF AUTOMATICS AND INFORMATICS
JOHN ATANASOFF CELEBRATION DAYS - 116th ANNIVERSARY**

**UNDER THE AUSPICES OF THE PRESIDENT OF REPUBLIC BULGARIA
R. RADEV**

**OCTOBER 4th - PROFESSIONAL DAY OF BULGARIAN SPECIALISTS
ON COMPUTERS, INFORMATION TECHNOLOGIES AND AUTOMATICS**

**INTERNATIONAL CONFERENCE
AUTOMATICS AND INFORMATICS'2019**

October 3-5, 2019, Sofia, Bulgaria

INTERNATIONAL CONFERENCE AUTOMATICS AND INFORMATICS'2019

October 3-5, 2019, Sofia, Bulgaria

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JOHN ATANASOFF SOCIETY OF AUTOMATICS AND INFORMATICS

INTERNATIONAL CONFERENCE AUTOMATICS AND INFORMATICS'2019

October 3-5, 2019, Sofia, Bulgaria

Organized by



**JOHN ATANASOFF SOCIETY
OF AUTOMATICS AND INFORMATICS**



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**BULGARIAN
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Union of the Bulgarian Business

Thursday, October 3th
National House of Science and Technique
Sofia, 108 Rakovski Str.

9.00 - 16.00 Conference Registration

10.00 - 10.20 - WELCOME AND OPENING CEREMONY

Place: [Hall 4](#)

Chairman: K.Boshnakov

10.20 - 10.50 -

Speech for Prof. John Atanasoff

10.50 - 11.30 PLENARY SESSION

Place: [Hall 4](#)

Chairman: Acad. V. Sgurev

Mincho Hadjiski

Cyber security of industrial control systems

11.30 – 13.00 Lunch time

13.00 – 18.30 SCIENTIFIC SESSIONS

Place: Hall 105a, Hall 3

17.30 – 18.30 DISCUSSION

Digitalization of the higher education on automation and informatics

Place: [Hall 3](#)

Moderator: A.Smrikarov

18.30 – 20.30 CONFERENCE COCKTAIL

Place: [Hall 1](#)

Thursday, October 3th
National House of Science and Technique
Sofia, 108 Rakovski Str.

13.00 - 15.00 SESSION A11 "CONTROL THEORY"

Place: [Hall 105a](#)

Chairman: N. Madjarov

T.Slavov, J.Kralev, P.Petkov

Embedded Robust Control of Multivariable Plants

K.Perev

Cross Gramian Orthogonal Approximation by Using a State Equation Integration Formula

V. D. Dimitrov, L. D Popov

Method of Fully Operational Identification of Slow-response Objects with Variable Parameters

H. Stoycheva, D. Chantov

Design of Chaotic Synchronization System Combining Projective, Marginal and Hybrid Synchronization

N. Nikolov, I. Grigorov

Matlab Modeling of a System for Adaptive Modal Control of SISO Objects

15.00 – 15.30 Coffee break

15.30 - 17.30 SESSION A12 "CONTROL APPLICATION"

Place: [Hall 105a](#)

Chairman: E. Nikolov

S.Yordanov , K. Ormandjiev , G. Mihalev

Robust Control of Cross-flow Water Turbine

Y. Boneva

Fixed-time Signal Plans Versus Actuated Control of Traffic Lights – Case Study of Shipchenski Pprohod Blvd. in Sofia, Bulgaria

V. Hristov, St. Petrov

Solar Tracking System by Microcontroller Arduino

E. A. Dimitrova

GPS Dispatch System for Monitoring and Control in Automobile Transport

T.Todorov

Identification of Sunflower Oil with "Electronic Nos" System Based on Gas Sensors

Thursday, October 3th
National House of Science and Technique
Sofia, 108 Rakovski Str.

13.00 – 15.00 SESSION B11 “MODELING AND PROCESS CONTROL”

Place: **Hall 105a**

Chairman: K. Boshnakov

M.Hadjiski , N. Deliiski, N. Tumbarkova

Mathematical Description of the Latent Heat of Liquid Fluids During Their Vaporization

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

Modelling of the Temperature Conductivity of Flat Wood Details During their one Sided Heating Before Bending

I.Simeonov, E. Chorukova, V. Akivanov

Bioreactor Cascade Management System for Hydrogen and Methane from Organic Waste

M.Petrov

A Promethee II Method for Selection of Growth Rate Models of Saccharomyces Cerevisiae Yeast using Different Mixing Systems

K.Arabadzhiev

Cask Ale Brewery Control System

15.00 – 15.30 Coffee break

15.30 - 17.30 SESSION B12 “MANAGEMENT OF ORGANIZATIONAL SYSTEMS”

Place: **Hall 3**

Chairman: I. Batchkova

D. Nikolov, M. Lazarova

Methods and Algorithms for Optimization in Resource Planning and Business Process Management in Enterprises

R. N. Hrishev

ERP Systems in Packaging Industry from Corrugated Board. Typical Features

K. Kolchakov, V. Monov

Performance of an Algorithm for Non-conflict Schedule in a Packet Switch with Large Scale Connections Matrix

R. Draganov, K. Haralampiev, P. Ruskov

Modeling Intelligent Ecosystems in Tourism

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

9.00 - 10.20 SESSION A21 “ROBOT VISION”

Place: **Hall 105a**

Chairman: R. Trifonov

G.Mihalev, S. Yordanov, T.Todorov

Study of Calibration Process of Camera Through Industrial Robot – Part 1

G.Mihalev, S. Yordanov, T.Todorov

Study of Calibration Process of Camera Through Industrial Robot – Part 2

D. Slavov

Autonomous Mobile Robot Control Using Machine Vision Camera

D. Slavov

Autonomous Robotic Line Tracking System

10.20 – 10.40 Coffee break

10.40 - 11.45 SESSION A22 “ROBOTICS – THEORY AND APPLICATION”

Place: **Hall 105a**

Chairman: S. Yordanov

S. Sherif, J. Krlev, T. Slavov

Synthesis of a Linear-quadratic Controller for Stabilization of a Walking Humanoid Robot

G. Pavlova, R. Trifonov, G. Tsochev

Humans and Robots Collaborative Work Problems

N. Angelov

Influence of Speed and Frequency on Laser Marking of Products From Steel 41Cr4

11.45 – 12.30 CELEBRATION THE ANNIVERSARY OF PROF. JOHN ATANASOFF - in front of the monument

12.30 -14.00 Lunch time

14.00 - 15.40 SESSION A23 “INTELLIGENT LEARNING AND EDUCATION (1)”

Place: Hall 105a

Chairman: I. Popchev

A.Toskova

Conceptual Model of Recommended System in Intelligent Game-based Learning Platform

S.Stavrev

Fluurmat – a Stem-based Teaching Platform

S. Tsoлова

Results from Approbation of Innovative Methodology for Education with Innovative ICT Tools

I.Velcheva

Group and Team Work in Informatics Training Through Brainstorming Method

15.40 – 16.00 Coffee break

16.00 - 17.40 SESSION A24 “INTELLIGENT LEARNING AND EDUCATION (2)”

Place: Hall 105a

Chairman: L. Doukovska

K. Metodiev, D. Gocheva

Development of Standalone Applications for Teaching Materials for Industrial Automation

G. Georgieva-Tsaneva

Research on the Use of Serious Education Games in Medical Education in Bulgaria

G. Stoitsov , G. Stoitsova

A Suggestion for Smart Classroom’s Architecture in Primary School

D. Hristov, G. Georgiev, A. Stoyanova-Doycheva

Academic Publication System

17.40 CLOSING CEREMONY

Place: Hall 3

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

9.00 - 10.20 SESSION B21 “IMAGE PROCESSIN AND PATTERNRECOGNITION”

Place: [Hall 3](#)

Chairman: M. Lazarova

M. Petrov

Wavelet Based Systems for Searching for Magnetic Resonance Images Using the Matrix of Maximum Singularities

H. Stoycheva, G. Mihalev

Implementation of Chaotic Synchronization Schemes in PC Based Image Encoding Application

R. Raynova, M. Lazarova, A. Aleksieva-Petrova

Multiagent Multimodal Architecture for Emotion Recognition

V. Dimitrov , K. Kolev

Development of a Browser Based Strategy Game Application

10.20 – 10.40 Coffee break

10.40 - 11.45 SESSION B22 “INTELLIGENT FAULT DETECTION AND ISOLATION”

Place: [Hall 3](#)

Chairman: M. Hadjiski

S. Stankov

Finding Dangerous Objects with the Help of Artificial Neural Networks

G.Penchev

Early Failure Notification and Predicted Logistics Support Personal Assistant

G.Penchev

Early Failure Notification, Predicted Maintenance and Logistics Support System

E. Yilmazlar, H. Kuşçu, A. Güllü

Design and Development Voice-controlled Smart Assistant and Device Activity

11.45 – 12.30 CELEBRATION THE ANNIVERSARY OF PROF. JOHN ATANASOFF - in front of the monument

12.30 -14.00 Lunch time

14.00 - 15.40 SESSION B23 “DATA ANALYSIS, STRUCTURING AND PROCESSING”

Place: Hall 3

Chairman: E. Garipov

V. Hadjiev, A. Rashidov

Overview and Analysis of Methods and Models for Data Structuring, Storage and Processing in the Internet

V. Hadjiev, A. Rashidov

Overview and Analysis of Architectures for Data Structuring, Storage and Processing in the Cloud

A.Popov, S. Lekova

System for Monitoring and Analysis of the Environmental data - Part 1

A.Popov, S. Lekova

System for Monitoring and Analysis of the Environmental Data - Part 2

S. Lekova, D. Gocheva

Statistical Analysis of Measurement Data

15.40 – 16.00 Coffee break

16.00 - 17.40 SESSION B24 “COMPUTER NETWORKS”

Place: Hall 3

Chairman: K. Spassov

B. Toskov , A. Toskova

Smart Sensor Network

M.Petrov

Abstraction of Interval Temporal Programming Model Using Application Transpilation Process

V. Valkanov, M.Petrov

Application of Blockchain Technologies for Tracking and Storing Education Progress

A. Panayotov, P. Ruskov

Car Renting via Blockchain Protocol

B.Belmahdi, K. Mazighi

Theoretical Analysis of an EDFA Amplifier Influence on WDM Optical Network

17.40 CLOSING CEREMONY

Place: Hall 3

		Hall 105a	Hall 3	Hall 4
Thursday, 3 th October	10.00 – 10.20			Welcome and Opening Ceremony
	10.20 – 10.50			Speech for prof. John Atanasoff
	10.50 – 11.30			Plenary Session
	11.30 – 13.00	Lunch Time		
	13.00 – 15.00	Control theory	Modeling and process control	
	15.00 – 15.30	Coffee Break		
	15.30 – 17.30	Control application	Management of organizational systems	
	17.30 – 18.30		Discussion	
	18.30 – 20.30	Conference Cocktail – Hall 1		
Friday, 4 th October	9.00 – 10.20	Robot vision	Image processing and pattern recognition	
	10.20 – 10.40	Coffee Break		
	10.40 – 11.45	Robotics – theory and application	Intelligent fault detection and isolation	
	11.45 – 12.30	Celebrating the Anniversary of Prof. John Atanasoff – in front of the monument		
	12.30 – 14.00	Lunch Time		
	14.00 – 15.40	Intelligent learning and education (1)	Data analysis, structuring and processing	
	15.40 – 16.00	Coffee Break		
	16.00 – 17.40	Intelligent learning and education (2)	Complex networks	
	17.40		Closing Ceremony	

