

UNIVERSITY of RUSE 8 STUDENTSKA STREET



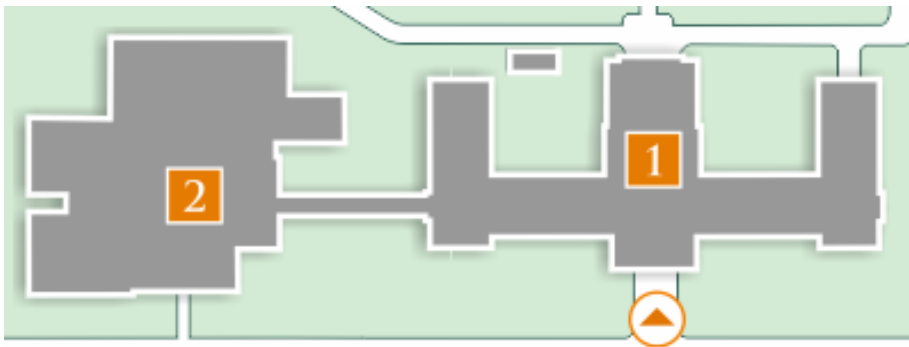
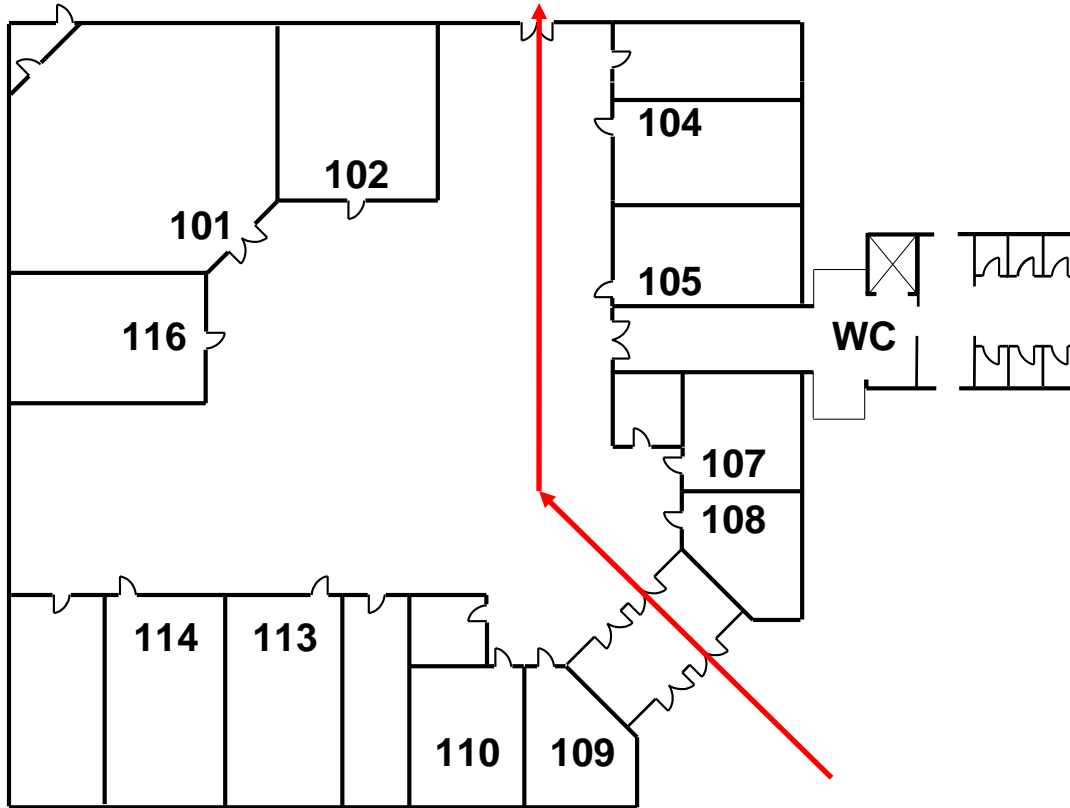
The new building

The main building



THE NEW BUILDING

Hall 2Г.204 SIEMENS



CAFE SNACK

RESTAURANTS

BANK



Dear Participants,

University of Ruse is a member of Eduroam world project and if your University/Organization is a member too, you can use your credentials to access internet via our wireless network.

You can also use free WIRELESS INTERNET via access points named **CompSys** with password **compsys19**.

You can also use the COMPUTERS in the Centre for PhD students - main building, in the middle of the 3 floor 1.411-4.

◆ CONFERENCE OBJECTIVE

The CompSysTech'19 International Conference is organized by the Bulgarian Academic Society of Computing and its OBJECTIVE is to intensify the information exchange of results in theoretical research and practical developments in the field. Since 2007 to 2018 all papers presented at the conference and published in the conference proceedings have been published in the ACM Digital Library, registered in the US Congress Library and indexed in SCOPUS, dblp, etc.

CompSysTech'19 is organized under the patronage of the:

- Bulgarian Ministry of Education and Science;
- John Atanasoff Union of Automation and Informatics;
- University of Ruse

◆ INTERNATIONAL PROGRAMME COMMITTEE

• Honorary Co-Chairs:

Kiril Boyanov (Member of BAS, Bulgaria)

Vasil Sgurev (Member of BAS, Bulgaria)

• Co-Chair:

Roumen Trifonov (Bulgaria)

Tzvetomir Vassilev (Bulgaria)

• Scientific Secretary:

Dimo Dimov (Bulgaria)

• Secretary:

Pavel Zlatarov (Bulgaria)

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Avram Eskenazi	Bulgaria	Levent Eren	Turkey
Betim Cico	Albania	Lyudmil Dakovski	Bulgaria
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Bojan Cestnik	Slovenia	Marco Porta	Italy
Borislav Bedzhev	Bulgaria	Margarita Todorova	Bulgaria
Carmen Lupascu	Italy	Maria Jose Marcelino	Portugal
Cesare Fabio Valenti	Italy	Markus Helfert	Ireland
Constantinos Pattichis	Cyprus	Mehmet Akif Şahman	Turkey

Dana Petcu	Romania	Milan Dimitrijevic	Serbia
Danail Dochev	Bulgaria	Mirjana Ivanovic	Serbia
Daniela Chuda	Slovakia	Murat Köklü	Turkey
Davide Taibi	Italy	Nikola Kasabov	New Zealand
Diana Kalibatiene	Lithuania	Nikolay Mehandjiev	United Kingdom
Domenico Tegolo	Italy	Novruz Allahverdi	Turkey
Douglas Harms	United States	Pavol Navrat	Slovakia
Erika Nazaruka	Latvia	Peter Stanchev	United States
Eugenijus Macikenas	Lithuania	Rebecca Bartlett	United Kingdom
Fabio Bellavia	Italy	Roumen Nikolov	Bulgaria
Georgi Georgiev	Bulgaria	Sebastiano Battiato	Italy
Georgi Todorov	Buglaria	Stavros Nikolopoulos	Greece
Georgi Tsochev	Bulgaria	Stoicho Stoichev	Bulgaria
Grisha Spasov	Bulgaria	Svetlana Stefanova	Bulgaria
Heinz-Dietrich Wuttke	Germany	Tsvetozar Georgiev	Bulgaria
Isaac Agudo	Spain	Ville Leppänen	Finland
Ivan Jelinek	Czech Republic	Vladimir Lazarov	Bulgaria
Jan Lang	Slovakia	Yasar Guneri Sahin	Turkey
Janis Grundspenkis	Latvia	Zhyldyzbek Zhakshylykov	Kyrgyzstan
Janusz Jabłonowski	Poland	Zoltan Geler	Serbia

◆ NATIONAL ORGANIZING COMMITTEE

• Co-Chairs:

Angel Smrikarov (Bulgaria)
Galina Ivanova (Bulgaria)

•Secretary:

Eugenia Dimitrova (Bulgaria)

• Members:

Tsvetozar Georgiev (Bulgaria)
Stoyanka Smrikarova (Bulgaria)
Aneliya Ivanova (Bulgaria)
Yuksel Aliev (Bulgaria)

◆ TOPICS

1. Computer Hardware.
2. Computer Software.
3. Application Aspects
of Computer Systems and Technologies.
4. Educational Aspects
of Computer Systems and Technologies
(ICT-based educational technologies).
5. The Youth and the Computer Systems and Technologies

Friday, 21th June 2019

08:00 – 18:00

New building, Hall 2Г.207

REGISTRATION

13:30

New building, Hall 2Г.204 SIEMENS

Demonstration of humanoid robots



14:00

New building, Hall 2Г.204 SIEMENS

OPENING

WELCOME

Chair: Angel Smrikarov



**20 YEARS
BULGARIAN ACADEMIC SOCIETY
OF COMPUTER SYSTEMS
AND INFORMATION TECHNOLOGIES**

Chair: Roumen Trifonov

PLENARY SESSION

Chair: Tzvetomir Vassilev



IVAN DIMOV

**Institute of Information and Communication Technologies,
Bulgarian Academy of Sciences,
Sofia, Bulgaria**

Keynote on:

**How close we are to the real Quantum Computer?
Efficient Monte Carlo algorithms for Wigner Monte Carlo Method**



AVRAM ESKENAZI

**Institute of Mathematics and Informatics,
Bulgarian Academy of Sciences,
Sofia, Bulgaria**

Keynote on:

**IT impact on the labor market –
professions to disappear and new ones to emerge**



ROMAN ZAHARIEV

**Nina Valchkova, George Angelov,
Yasen Paunski, Aleksander Krastev
Institute of Robotics,
Bulgarian Academy of Sciences,
Sofia, Bulgaria**

Keynote on:

**Robots for Help of Pedagogy and Rehabilitation
with disabilities**

DISCUSSIONS



**Walking tour of the University of Ruse
Visiting the multimedia museum of the University**

Friday, 21th June 2019
19:30
SOCIAL EVENING IN THE RESTAURANT "RIGA"
22 PRIDUNAVSKI BLVD
2 floor



PROGRAMME SUMMARY

Saturday, 22th June 2019

	Hall 2.204	Hall 2.205	Hall 2.206	Hall 2.207
9:00 – 11:30	Session A Number of papers: 8	Session C Number of papers: 7	Session E Number of papers: 8	Session G Number of papers: 7
11:30 – 12:00	2.203 COFFEE BREAK 			
12:00 – 14:30	Session B Number of papers: 8	Session D Number of papers: 7	Session F Number of papers: 7	Session H Number of papers: 3 Session I Number of papers: 5
14:30	Hall 2F.204 SIEMENS THE BEST PAPERS AWARDS 			

Session A

Chair: **Zaza Davitadze**
Co-Chair: **Grisha Spasov**
Scientific Secretary: **Pavel Zlatarov**

Saturday, 22nd June 2019
9:00 – 11:30
New building, Hall 2.204

COMPUTER HARDWARE

- 1. Internet of Things - Models and Basic Architectures**
Grisha Spasov
- 2. Hardware Divider. Calculation of the Remainder**
Dimitar Tyanev and Yulka Petkova
- 3. Three-Sensor Portable Information System for Physiological Data Registration**
Mitko Gospodinov and Krassimir Cheshmedziev

NETWORK AND INFORMATION SECURITY

- 1. An Inquiry into Localized Email Spam**
Sampsa Rauti
- 2. Malicious Software Detection utilizing Temporal-Graphs**
Anna Mpanti, Stavros Nikolopoulos and Iosif Polenakis
- 3. Conceptualizing a collaboration framework between Blockchain technology and the Internet of Things**
Sasa Pesic, Mirjana Ivanovic, Milos Radovanovic, Milenko Tosic, Ognjen Ikovic and Dragan Boskovic
- 4. Evaluation of the Complexity of Fully Homomorphic Encryption Schemes in Implementations of Programs**
Dimitar Chakarov and Yavor Papazov
- 5. Main Considerations in Elaborating Organizational Information Security Policies**
Todor Tagarev and Dimitrina Polimirova

DISCUSSIONS

11:30 – 12:00
2.203
Coffee Break

Session B

Chair: **Bojan Cestnik**
Co-Chair: **Dimo Dimov**
Scientific Secretary: **Pavel Zlatarov**

Saturday, 22nd June 2019
12:00 – 14:30
New building, Hall 2.204

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

1. **Artificial intellect – Regulatory Framework and Challenges Facing the Labour Market**
Andriyana Andreeva, Galina Yolova and Diana Dimitrova
2. **Obstacle avoidance algorithms for mobile robots**
Dilyana Budakova, Galya Pavlova, Roumen Trifonov and Ivan Chavdarov
3. **Enrichment of EHR with Linked Open Data for Risk Factors Identification**
Svetla Boytcheva, Galia Angelova, Zhivko Angelov, Dimitar Tcharaktchiev and Vlaiko Vodenicharov
4. **Declarative Implementations of Genetic Algorithms in Control Network Programming**
Emilia Golemanova and Tsanko Golemanov
5. **A genetic approach to the maximum common subgraph problem**
Cesare Fabio Valenti
6. **Rough Graded Possibilistic Meta--Outlier Detection in Granular Clustering**
Alessio Ferone and Antonio Maratea
7. **Filters in Convolutional Neural Networks as Independent Detectors of Visual Concepts**
Anton Hristov, Maria Nisheva and Dimo Dimov
8. **Supporting decisions with fast and frugal trees for improving trust in public housing services**
Bojan Cestnik and Alenka Kern

DISCUSSIONS

14:30
Hall 2Г.204 SIEMENS
THE BEST PAPERS AWARDS

Session C

Chair: **David Devadze**
Co-Chair: **Virginiya Dimitrova**
Scientific Secretary: **Vladimir Dochev**

Saturday, 22nd June 2019
9:00 – 11:30
New building, Hall 2.205

COMPUTER SOFTWARE

- 1. Computationally Intensive Tasks in Designing and Operating Distributed Cyber Secure and Resilient Systems**
Todor Tagarev, George Sharkov
- 2. A Survey on State of Software Quality Assurance**
Peter Sabev and Katalina Grigorova
- 3. Solution of the Optimal Control Problem for Helmholtz Equations with m-Point Nonlocal Boundary Conditions Using MEDG Method**
Vakhtang Beridze and David Devadze
- 4. OAtools – Software package for investigation of orthogonal arrays**
Venelin Monev and Maya Hristova
- 5. Determination of the Computer Modelling Precision for Throughput of Switch Node with LPF-algorithm**
Tasho Tashev, Radostina Tasheva and Petar Petrov
- 6. Improvement of the Geometric Environment Used for Simulation and Visualization of Field Distribution**
Virginiya Dimitrova
- 7. Analysis of the Quality of Points of Interests in the Most Popular Location-based Games**
Samuli Laato, Tarja Pietarinen, Sampsa Rauti and Teemu Laine

DISCUSSIONS

11:30 – 12:00
2.203
Coffee Break

Session D

Chair: **Domenico Tegolo**
Co-Chair: **Tsvetozar Georgiev**
Scientific Secretary: **Vladimir Dochev**

Saturday, 22nd June 2019
12:00 – 14:30
New building, Hall 2.205

IMAGE, TIME SERIES AND SIGNAL PROCESSING

1. **Cheese quality evaluation by image segmentation**
Angel Danev, Atanaska Bosakova-Ardenska, Petya Boyanova, Peter Panayotov and Lena Kostadinova-Georgieva
2. **Blue cheese cut surface evaluation by images analysis**
Vladimira Gančovska, Atanaska Bosakova-Ardenska, Peter Panayotov, Lena Kostadinova-Georgieva, Angel Danev and Ivanka Krasteva
3. **Method for Contour Detection of Water Areas**
Gergana Spasova
4. **A Wavelet approach to extract main features from indirect immunofluorescence images**
Domenico Tegolo, Giuseppe Raso, Riccardo Di Palermo and Donato Cascio
5. **Time Series Analysis Using Fractal and Multifractal Methods**
Evgeniya Gospodinova
6. **Computation of Time Series Scaling Exponent for Electricity Prices Forecasting**
Ekaterina Popovska and Mitko Gospodinov
7. **Wavelet Based Interval Varying Algorithm for Optimal Non-Stationary Signal Denoising**
Galya Georgieva-Tsaneva

DISCUSSIONS

14:30
Hall 2Г.204 SIEMENS
THE BEST PAPERS AWARDS

Session E

Chair: **Marco Alfano**
Co-Chair: **Todor Stoilov**
Scientific Secretary: **Vasil Kouzov**

Saturday, 22nd June 2019
9:00 – 11:30
New building, Hall 2.206

APPLICATION ASPECTS OF COMPUTER SYSTEMS AND TECHNOLOGIES

- 1. How to integrate complex optimal data processing in information services in internet**
Todor Stoilov
- 2. A REST-based Framework to Support Non-Invasive and Early Coeliac Disease Diagnosis**
Salvatore Sorce, Vito Gentile, Donato Cascio, Angele Giuliano, Marco Tabacchi, Vincenzo Taormina, Domenico Tegolo, Cesare Valenti and Giuseppe Raso
- 3. Provision of Tailored Health Information for Patient Empowerment: An Initial Study**
Marco Alfano, Biagio Lenzitti, Davide Taibi and Markus Helfert
- 4. An algorithm for calculation of own ship's course over ground and speed over ground using ARPA, by acquiring a fixed object**
Blagovest Belev and Dilyan Dimitranov
- 5. Enhancing Accuracy and Precision of eye tracker by head movement compensation and calibration**
Kiril Alexiev, Teodor Toshkov and Peter Dojnov
- 6. Using Lindenmayer Systems For Generative Modeling Of Graphic Concepts, Set In Elements Of Bulgarian Folklore Embroidery**
Desislava Baeva
- 7. Practical application of heuristic approaches to improving the network architecture of a courier company**
Georgi Shipkovenski and Oleg Asenov

DISCUSSIONS

11:30 – 12:00
2.203
Coffee Break

Session F

Chair: **Svetlana Stefanova**
Co-Chair: **Yavor Dankov**
Scientific Secretary: **Vasil Kouzov**

Saturday, 22nd June 2019
12:00 – 14:30
New building, Hall 2.206

DATA MANAGEMENT AND INFORMATION RETRIEVAL

1. **Models for web applications data analysis**
Snezhana Sulova
2. **Conceptual Model of User Interface Design for General Architectural Framework for Business Visual Analytics**
Yavor Dankov
3. **Assessment of Black Litterman portfolio optimization on Bulgarian Stock Exchange**
Krasimira Stoilova, Todor Stoilov and Miroslav Vladimirov
4. **Conceptual Architecture of GATE Big Data Platform**
Dessislava Petrova-Antonova, Iva Krasteva, Sylvia Ilieva and Irena Pavlova
5. **Comparison between advanced software technologies for creating web systems working with Big Data**
Svetlana Stefanova and Iliya Draganov
6. **A Novel Document Summarization System for Albanian Language**
Evis Trandafilii, Hakik Paci and Elona Karaj
7. **A Basic Testbed for JSON Data Processing in SQL Data Servers**
Ionuț Hrubaru Hrubaru, George Talabă and Marin Fotache

DISCUSSIONS

14:30
Hall 2Г.204 SIEMENS
THE BEST PAPERS AWARDS

Session G

Chair: **Roumiana Peytcheva-Forsyth**

Co-Chair: **Milen Loukantchevsky**

Scientific Secretary: **Yuksel Aliev**

Saturday, 22th June 2019

09:00 – 11:30

New building, Hall 2.207

**EDUCATIONAL ASPECTS
OF COMPUTER SYSTEMS AND TECHNOLOGIES
(ICT-based Educational Technologies)**

- 1. A pedagogical perspective towards ICT-based innovative educational technologies - case study on TeSLA Integration in e-assessment**
Roumiana Peytcheva-Forsyth
- 2. A bilingual ontology mapping and enrichment approach for domain ontologies in e-learning**
Tatyana Ivanova
- 3. Space Safari – Challenge for STEM Rangers**
Elitsa Peltekova, Eliza Stefanova and Nikolina Nikolova
- 4. Implementation of a Training Parser Using Explicit Abstract Syntax Tree**
Ivaylo Penev and Milena Karova
- 5. A Testbed of Non-determinism in Educational Context**
Milen Loukantchevsky, Nikolay Kostadinov and Hovanes Avakyan
- 6. Integration Of „Business Intelligence“ Course To Master Academic Studies In Informatics**
Aleksandra Klašnja-Milićević, Nevena Ranković and Mirjana Ivanović
- 7. Resources and Semantic-based knowledge models for personalized and self regulated learning in the Web: survey and trends**
Tatyana Ivanova

DISCUSSIONS

11:30 – 12:00

2.203

Coffee Break

Session H

Chair: **Galina Ivanova**
Co-Chair: **Valentina Petrova**
Scientific Secretary: **Yuksel Aliev**

Saturday, 22th June 2019
12:00 – 13:00
New building, Hall 2.207

**EDUCATIONAL ASPECTS
OF COMPUTER SYSTEMS AND TECHNOLOGIES
(ICT-based Educational Technologies)**

1. **Innovative eLearning Technologies in the Open Education Era**
Pavel Boytchev and Svetla Boytcheva
2. **Using the Analytic Hierarchy Process for LMS selection**
Valentina Petrova
3. **Technological Model for Implementation of m-Learning in Higher Education in Republic of Yemen**
Georgi Tuparov, Abdulrahman Al-Sabri and Daniela Tuparova

DISCUSSIONS

Session I

Chair: **Peter Kenderov**
Co-Chair: **Aneliya Ivanova**
Scientific Secretary: **Yuksel Aliev**

Saturday, 22th June 2019
13:00 – 14:30
New building, Hall 2.207

THE YOUTH AND THE ICT

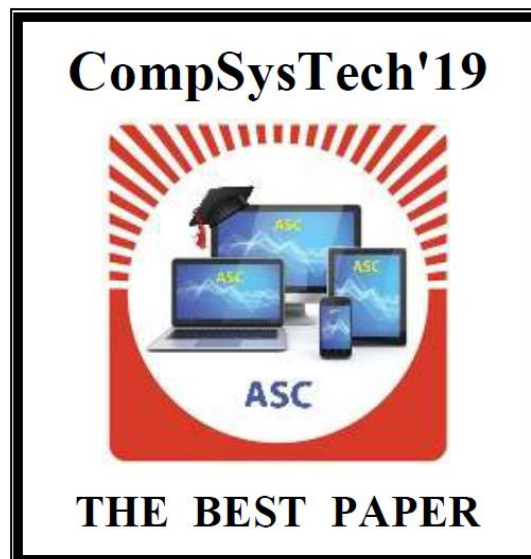
- 1. 3D Educational game for learning notes „3D MuSic“**
Mariya Kirilova, Syuzan Feimova
- 2. Geometric shapes**
Rostislav Gordeev, Syuzan Feimova
- 3. Collection of classical games**
Ivan Petrov, Erik Nikolov, Syuzan Feimova
- 4. History of logical games**
Velislava Krumova, Dilyana Doycheva, Syuzan Feimova
- 5. Swarm intelligence**
Monika Velikova, Selin Shemsieva, Syuzan Feimova

DISCUSSIONS

14:30
Hall 2Г.204 SIEMENS
THE BEST PAPERS AWARDS

Saturday, 22th June 2019
14:30
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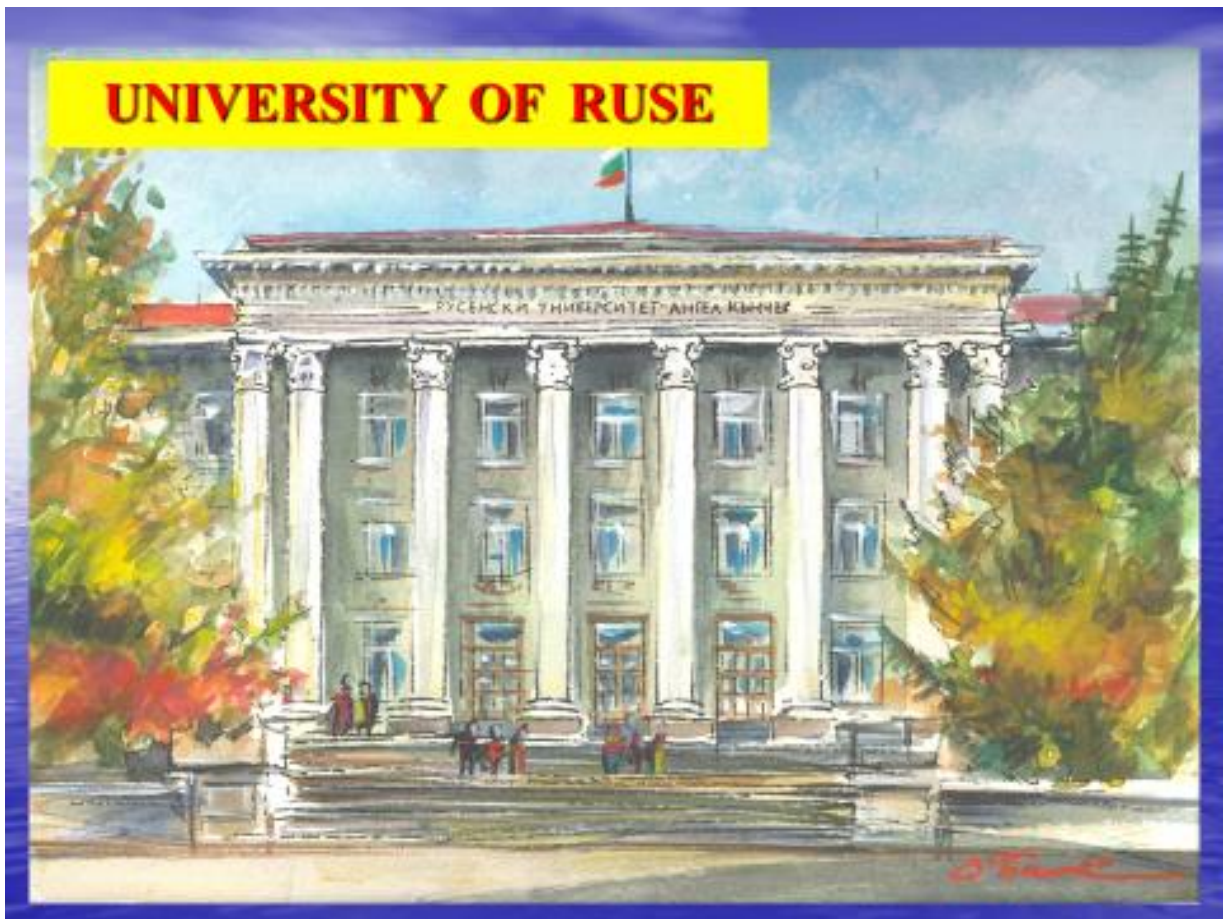
**The CHAIRS
of the PROGRAMME COMMITTEE
and
the ORGANIZING COMMITTEE
will bestow
a CRYSTAL PRIZE
to the authors of the best papers.**



Saturday, 22th June 2019
15:00
New building, Hall 2Г.204 SIEMENS

**Meeting
of the PROGRAMME COMMITTEE and ORGANIZING COMMITTEE
and the chairs of each sections
of the CompSysTech'19**

Paintings from RUSE

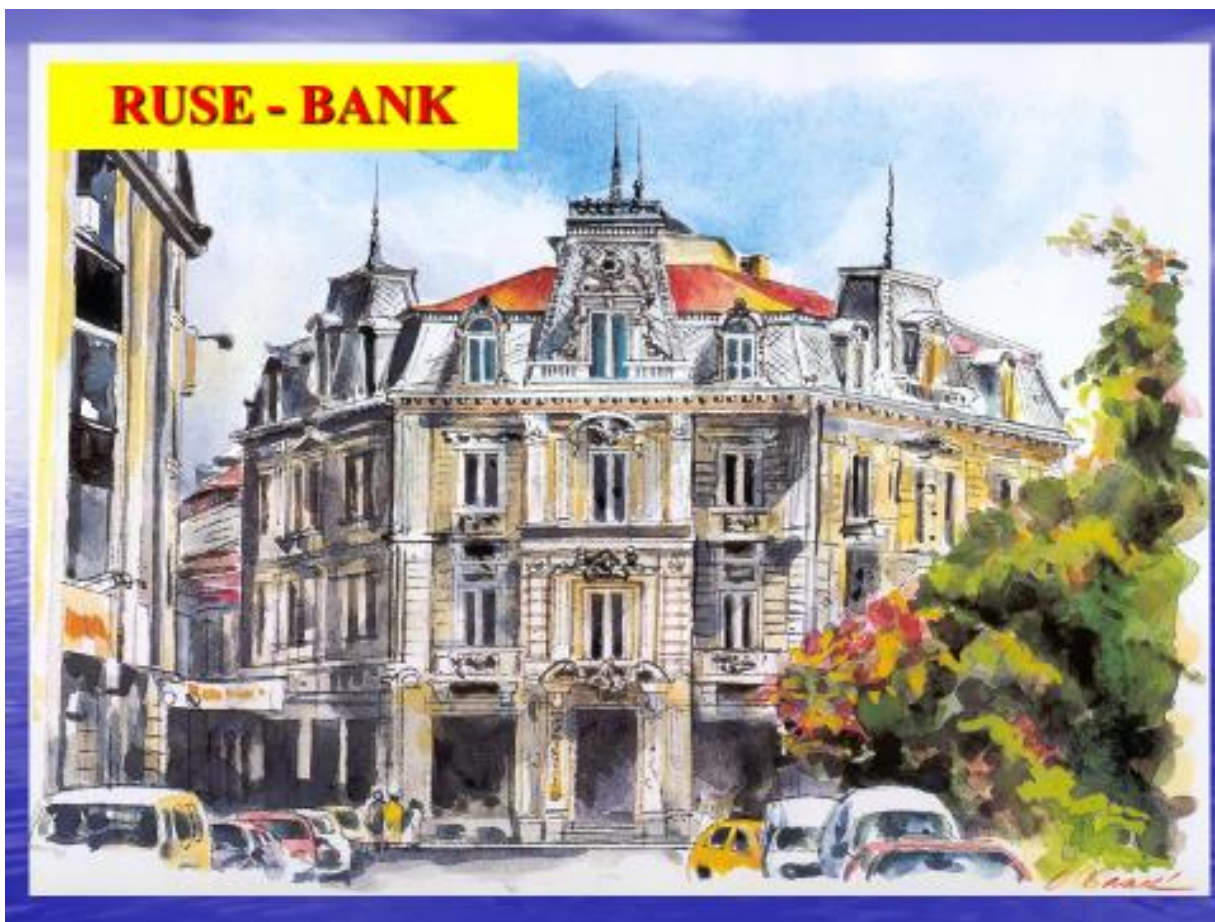


RUSE - LIBRARY



RUSE - MUSEUM





REMARKS