

27th
INTERNATIONAL CONFERENCE
ON COMPUTER SYSTEMS
AND TECHNOLOGIES

CompSysTech'26

26-27 June 2026
University of Ruse
BULGARIA

P R O G R A M M E



**"WORK,
FINISH,
PUBLISH"**

Michael Faraday

◆ CONFERENCE OBJECTIVE

The CompSysTech'26 International conference is organised by THE BULGARIAN ACADEMIC SOCIETY OF COMPUTING and IEEE Bulgarian Section. Its OBJECTIVE is to intensify the information exchange of the results in theoretical research and practical developments in this field. All papers presented at the conference from 2007 to 2024 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'25 papers were published and CompSysTech'26 papers will be published in IEEE Xplore and indexed in Scopus.

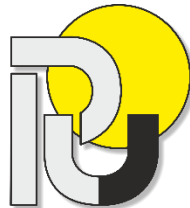
CompSysTech'26 is organized by:

- University of Ruse "Angel Kanchev"
- IEEE Bulgarian Section
- The John Atanasoff Society of Automatics and Informatics (SAI)

CompSysTech'26 is supported by project "Scientific University of Ruse", funded by the European Union - NextGenerationEU, through the National Plan for Recovery and Resilience of the Republic of Bulgaria, BG-RRP-2.013-0001.



**FUNDED BY THE
EUROPEAN UNION**
NextGenerationEU



**UNIVERSITY
OF RUSE**



**NATIONAL
RECOVERY AND
RESILIENCE PLAN**

◆ INTERNATIONAL PROGRAMME COMMITTEE

• Honorary Co-Chairs:

Kiril Boyanov (Member of BAS, Bulgaria)

Vasil Sgurev (Member of BAS, Bulgaria)

• Co-Chairs:

Roumen Trifonov (Bulgaria)

Tzvetomir Vassilev (Bulgaria)

• Scientific Secretary:

Dimo Dimov (Bulgaria)

• Secretary:

Pavel Zlatarov (Bulgaria)

• **Members:**

Adriana Borodzhieva	Bulgaria	Kaloyan Yovchev	Bulgaria
Aleksandra Klasnja-Milicevic	Serbia	Karim Baiche	Algeria
Alvaro Santos	Portugal	Karl Jones	United Kingdom
Amar Ramdane-Cherif	France	Katalina Grigorova	Bulgaria
Amelia Badica	Romania	Kemal Tutuncu	Turkiye
Anabela Gomes	Spain	Khaled Harrar	Algeria
Aneliya Ivanova	Bulgaria	Kristian Stancin	Croatia
António Mendes	Spain	Leon Rothkrantz	The Netherlands
Asrun Matthiasdottir	Iceland	Levent Eren	Turkiye
Atanaska Bosakova-Ardenska	Bulgaria	Marco Porta	Italy
Bayram Ashyrmradovich Jumayev	Turkmenistan	Margarita Todorova	Bulgaria
Betim Cico	Albania	Maria Jose Marcelino	Portugal
Bojan Cestnik	Slovenia	Martín Llamas-Nistal	Spain
Costin Badica	Romania	Mary Sánchez-Gordón	Norway
Daniela Chuda	Slovakia	Milan S. Dimitrijević	Serbia
Desislava Baeva	Bulgaria	Mirjana Ivanovic	Serbia
Diana Kalibatiene	Lithuania	Murat Koklu	Turkey
Dimo Dimov	Bulgaria	Nardjes Bouchemal	Algeria
Douglas Harms	United States	Noura Aknin	Morocco
Eduard Kuric	Slovakia	Peter Kapec	Slovakia
El Khadimi Ahmed	Morocco	Plamen Zahariev	Bulgaria
Emiliya Golemanova	Bulgaria	Radka Nacheva	Bulgaria
Erika Nazaruka	Latvia	Rebecca Bartlett	United Kingdom
Francesco Rundo	Italy	Ruslan Isaev	Cambodia
Galya Tsaneva	Bulgaria	Sampsa Rauti	Finland
Georgi Georgiev	Bulgaria	Sanjay Misra	Norway
Georgi Hristov	Bulgaria	Saulius Gudas	Lithuania
Georgi Todorov	Bulgaria	Sergey Stupnikov	Russia
Georgi Tuparov	Bulgaria	Siska Fitriane	The Netherlands
Grisha Spasov	Bulgaria	Snezhana Sulova	Bulgaria
Hamza Akroum	Algeria	Stavros Nikolopoulos	Greece
Heinz-Dietrich Wuttke	Germany	Svetlana Stefanova	Bulgaria
Iosif Polenakis	Greece	Teodor Iliev	Bulgaria
Ivan Jelinek	Czech Republic	Todor Todorov	Bulgaria
Iyad Lahsen Cherif	Morocco	Tsvetanka Georgieva	Bulgaria
Ján Lang	Slovakia	Tsvetozar Georgiev	Bulgaria

Janis Grundspenkis	Latvia	Urtė Radvilaitė	Lithuania
Janusz Jabłonowski	Poland	Valentina Voinohovska	Bulgaria
Jolanta Miliauskaitė	Lithuania	Vanya Stoykova	Bulgaria
Jose Alvarez	Spain	Ville Leppänen	Finland
Jouni Ikonen	Finland	Yassine Meraihi	Algeria
Juliana Peneva	Bulgaria	Zoltan Geler	Serbia
Juraj Vincúr	Slovakia		

◆ NATIONAL ORGANIZING COMMITTEE**• Co-Chairs:**

Galina Ivanova (Bulgaria)

Aneliya Ivanova (Bulgaria)

•Members:

Stoyanka Smrikarova (Bulgaria)

Angel Smrikarov (Bulgaria)

Tsvetozar Georgiev (Bulgaria)

Elitsa Ibryamova (Bulgaria)

Yuksel Aliev (Bulgaria)

Rumen Rusev (Bulgaria)

Desislava Baeva (Bulgaria)

Vasil Kozov (Bulgaria)

Adriana Borodzieva (Bulgaria)

Aleksandar Ivanov (Bulgaria)

Valentina Voinohovska (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)**

Friday, 26th June 2026

14:30

OPENING

WELCOME

Chair: **Galina Ivanova**

2Г.204, Hall Siemens

<https://meet1.uni-ruse.bg/b/awu-zhk-ngm>

PLENARY SESSION

Chair: Tzvetomir Vassilev

Room: 2Г.204, Hall Siemens

<https://meet1.uni-ruse.bg/b/awu-zhk-ngm>



Marco Porta
Professor, University of Pavia, Italy

Keynote on:
Intelligent Interaction at a Glance: The Future of Gaze-Aware Systems



Houcemeddine Hermassi
Associate Professor, Head of Computer Engineering Department, National School of Engineers of Carthage ENICarthage, University of Carthage, Tunisia

Keynote on:
STEG-Guard: A Self-Supervised Multi-Domain Graph Neural Network Framework for Zero-Day Malware Detection in Steganographic Images

DISCUSSIONS

PROGRAMME SUMMARY

Saturday, 27th June 2026

9:00 – 10:45	Session A Number of papers: 8	Session C Number of papers: 8	Session E Number of papers: 8
10:45 – 11:00	COFFEE BREAK		
11:00 – 12:45	Session B Number of papers: 8	Session D Number of papers: 7	Session F Number of papers: 7
11:00 – 12:30	Session G (School students) Number of papers: 6		
27th June 13:15	THE BEST PAPERS AWARDS 2Г.204, Hall Siemens https://meet1.uni-ruse.bg/b/awu-zhk-ngm		

Session A

Chair: **Sherin Moussa**
Co-Chair: **Aneliya Ivanova**
Scientific Secretary: **Yuksel Aliev**

Saturday, 27 June 2026

9:00 – 10:45

1.322 , <https://meet1.uni-ruse.bg/b/pv2-7qf-jzv>

ARTIFICIAL INTELLIGENCE

1. **Methodology for optimized creation of a specialized dataset for detecting illegal dumps using the YOLO26 architecture**
Marin Yordanov, Vanya Stoykova and Gabriela Kiryakova
2. **Benchmarking Data Augmentation Methods for Hand-Drawn Circuit Component Detection Across Object Detectors**
Semih Buğra Sarıkaya, Abdulsamet Yılmaz and Sezer Ulukaya
3. **MOSAIC-1M: A Large-Scale Multi-Modal Dataset with Automated Semantic Annotations for Visual Content Understanding**
Simeon Emanuilov, Aleksandar Dimov and Ivan Makaveev
4. **Generalization and Robustness in CKD Risk Prediction: A Comparative Study Across Independent Datasets**
Manolo Dulva Hina, Olfa Lamouchi, Assia Soukane and Galina Ivanova
5. **Simplicial Topology for Knowledge Graph Embeddings**
Bikram Pratim Bhuyan, Amylia Ait Saadi, Manolo Hina, Galina Ivanova and Amar Ramdane-Cherif
6. **Adaptive Channel Weighting Forest for EEG-Based Epileptic Seizure Classification**
Zarina Kerimalieva, Mekia Shigute Gaso and Remudin Reshid Mekuria
7. **Evaluating Physics Injection Strategies for PV Forecasting Networks under Realistic Weather Forecast Drift**
Dezdemona Gjylapi and Alketa Hyso
8. **A Comparative Review of Computational Linguistics Approaches to Filipino Language: Strengths, Limitations, and Future Directions**
Bernardith Cruz, Great Allan Ong, Lea Morales and Keila Marie Mauricio

DISCUSSIONS

10:45 – 11:00

Coffee Break

1.311

Session B

Chair: **Sofian Ben Amor**
Co-Chair: **Aneliya Ivanova**
Scientific Secretary: **Yuksel Aliev**

Saturday, 27 June 2026

11:00 – 12:45

1.322 , <https://meet1.uni-ruse.bg/b/pv2-7gf-jzv>

MACHINE LEARNING

- 1. Metabolic Risk Factors and Psoriasis Epidemiology in Kyrgyzstan: A Machine Learning Analysis Using GBD Data**
Malika Ashirbekova and Tattybubu Arap Kyzy
- 2. Hybrid Deep Learning Approach for Neonatal Jaundice Screening**
Diana Zhumantaeva, Mukhammadmuso Abduzhabbarov and Burul Shambetova
- 3. Development of a Snow Leopard Detection System Using Machine Learning with Web-Based Interface for Camera Trap Image Analysis**
Aman Nazarkulov, Emilbek Zholdoshibekov, Khan Mohd. Tauheed and Andrei Ermakov
- 4. Classification of Essential Oils using Electronic Nose**
Juan Miguel F. Centeno, Luis Miguel O. Cristobal and Meo Vincent C. Caya
- 5. End-to-End GNSS Interference Classification Using CNNs with Neural Engine Acceleration**
Mai Xuan Ngoc, Nguyen Dinh Thuan, Hoang Van Hiep, La The Vinh and Pham Ngoc Hung
- 6. A Leakage-Safe Adaptive Hybrid Weighted Ensemble for Gallstone Disease Prediction from Clinical Tabular Data**
Aizirek Ibraimova, Mekia Shigute Gaso and Remudin Reshid Mekuria
- 7. Handling Uncertainty, Imprecision, and Risk in Decision Support Systems: A Review of Machine Learning Approaches**
Daniel Sivcov, Fernanda Brito Correia and Ana Rosa Borges
- 8. KyrgyzDentex: A Unique Multi-Modal Dental Radiograph Dataset from Kyrgyzstan with Classical Machine Learning and Deep Learning Benchmarks for Caries Detection**
Tattybubu Arap Kyzy, Timur Turatali, Mukhammadmuso Abduzhabbarov and Ruslan Isaev

DISCUSSIONS

13:15

2Г.204, Hall Siemens,

<https://meet1.uni-ruse.bg/b/awu-zhk-ngm>

THE BEST PAPERS AWARDS

Session C

Chair: **Noura Aknin**
Co-Chair: **Desislava Baeva**
Scientific Secretary: **Vasil Kozov**

Saturday, 27 June 2026

9:00 – 10:45

1.311.4 , <https://meet1.uni-ruse.bg/b/cfq-8wo-xgo-pnf>

COMPUTER SOFTWARE

1. **CITPT: A Concurrency-Induced Throughput Phase Transition in Blocking Client–Server Architectures under Extreme Concurrency: An A-MAPSS Based Experimental Study**
Hristo Hristov
2. **Seamless UML-HDL Co-Design: Bridging Graphical and Textual Hardware Development by using Activity Diagrams**
Jakub Abrahoim, Pavle Dakic and Jan Lang
3. **Improving Software Requirements Quality Using LLM-Based Repair-Augmented Retrieval**
Alexander Iliev, Doruk Barkın Dürak, Tushar Gada and Fouad Akrab
4. **Quota-Guided Deadline Protection and Aol-Aware Scheduling for Mixed-Criticality Event Streams**
Nurgunes Yordanov and Bülent Çavuşoğlu

MODELING & SIMULATION

5. **Analytical Model for Determining the Side Clearance Angles of a Sharpened Twist Drill and Its Validation in a CAD Software**
Tihomir Gyulov, Anton Grozev and Aleksandar Ivanov
6. **Computer-based study of the static and dynamic stability of an Unmanned Aerial Vehicle**
Radostina Calovska and Stefan Biliderov
7. **Tailoring DINO-DETR to be efficient for SAR: A novel Loss Function to correct Physical Effects**
Boutayeb Anasse, Iyad Lahsen-Cherif and Khadimi Ahmed
8. **Mathematical Modeling of Metastatic Cancer Spread**
Zhazgul Ablakeeva, Tattybubu Arap Kyzy and Mukhammadmuso Abduzhabbarov

DISCUSSIONS

10:45 – 11:00

Coffee Break

1.311

Session D

Chair: **Manolo Hina**
Co-Chair: **Adriana Borodzhieva**
Scientific Secretary: **Vasil Kozov**

Saturday, 27 June 2026

11:00 – 12:45

1.311.4, <https://meet1.uni-ruse.bg/b/cfq-8wo-xqo-pnf>

HUMAN COMPUTER INTERACTION

- 1. English Braille Language Interpreter using MindOCR with YOLOv5**
Kish Davin Abu, Paul Lorenz Antonio and Dionis Padilla
- 2. A Secure Multi-Phase Accessible E-Voting System for Visually Impaired Users**
Mohammed Z.M. Shat and Mariana Mocanu
- 3. Proposed Integration of AR/VR Immersive Environments with Adaptive Rehabilitation Exoskeletons: Toward Physio-Mental Therapy Enhancement**
Muhammetmyrat Annamammedov, Yslam Orazov, Lale Orazgulyyeva, Ayjahan Otuzova, Kerim Jemhurov and Yuldashbay Kurambayev

COMPUTER NETWORKS

- 4. Edge AI-Based Efficient Data Transmission in LoRaWAN Healthcare Monitoring Systems**
Oumaima Charif and Noura Aknin
- 5. Deployment of a Low-Power LoRa LPWAN Sensor Network for Environmental Monitoring in Antarctica**
Nikolay Milovanov, Boris Tzankov and Petar Sapundzhiev
- 6. EQ-OLSR: An Energy-Aware Q-Learning Enhanced OLSR Routing Protocol for Flying Ad Hoc Networks**
Safa Ferrah, Abdelhak Mesbah, Ibtihel Baddari, Nissa Mehibel, Yassine Meraihi and Galina Ivanova
- 7. Unsupervised Anomaly Detection in Network Traffic: A Comparative Study**
Ricardo Tavares, Marco Neto, Ana Rosa Borges and Fernanda Brito Correia

DISCUSSIONS

13:15

2Г.204, Hall Siemens,

<https://meet1.uni-ruse.bg/b/awu-zhk-ngm>

THE BEST PAPERS AWARDS

Session E

Chair: **Yassine Meraihi**
Co-Chair: **Galina Ivanova**
Scientific Secretary: **Pavel Zlatarov**

Saturday, 27 June 2026

9:00 – 10:45

1.411.4, <https://meet1.uni-ruse.bg/b/awu-zhk-ngm>

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

1. **MECHO: Development of a Modular Collaborative Robot for Research and Education**
Kaloyan Yovchev
2. **Teaching Cryptography as a Bridge Between Mathematics and Computer Science in High School and Higher Education**
Dimitar Stoyanov and Adriana Borodzhieva
3. **From AI as Tutor to AI as Co-Regulator: A Deep Learning Approach for Real-Time Cognitive and Motivational Support in LMS Environments**
Souhaib Aammou, Marina Sounoglou and Noura Aknin
4. **Extending MATLAB and Signal Processing Toolbox for Index-Aware Time-Shifting and Time-Reversal of Discrete-Time Signals**
Adriana Borodzhieva, Yordan Kalmukov and Snezhinka Zaharieva
5. **Validating AI-Simulated Students for Early Regression Testing of Adaptive Learning Controllers**
Khizar Aamir, Abdallah Mohamed and Mostafa Mohamed
6. **Is Brain Tutoring Possible? A Review of Brain-to-Brain Interface Technology and Its Feasibility for Knowledge Transfer**
Yslam Orazov, Nurjemal Bayramova, Mekan Allyyev, Azat Babayev, Sahetnur Durdyev, Annageldi Orazov
7. **Integrating Math and Computing Through Cryptography: Classical Ciphers as a Teaching Tool**
Dimitar Stoyanov and Adriana Borodzhieva
8. **Quantifying Student Engagement: A Mathematical Model of Gamification and Learning Analytics in Higher Education**
Kalin Dimitrov

DISCUSSIONS

10:45 – 11:00

Coffee Break

1.311

Session F

Chair: **Amar Ramdane-Cherif**
Co-Chair: **Galina Ivanova**
Scientific Secretary: **Pavel Zlatarov**

Saturday, 27 June 2026

11:00 – 12:45

1.411.4, <https://meet1.uni-ruse.bg/b/awu-zhk-ngm>

DATA MANAGEMENT

1. **A Case Study of Functional Currency Migration in Odoo ERP: From BGN to EUR**
Anton Genchev
2. **AI-driven Data Preprocessing and Visualization for IoT-based ICU Monitoring Application**
Haleema Solyman, Rawaa Qasha and Shaimaa Rashid
3. **Development and Systematic Management of Information Software Complex in the Electric Power Industry**
Abdyev Jumamhammet
4. **Towards Efficient Smart Greenhouses: A Comparative Study for Evolving Computing Paradigms and Proposed Architecture**
Merna Said, Nada Hamed and Sherin Moussa

NETWORK SECURITY

5. **A Lightweight Hybrid Quantum Neural Network for Binary Intrusion Detection**
Raid Anis Kerkatou, Hacene Belhadeif, Aicha Eutamene and Svetlana Petrova Stefanova
 6. **Design and implementation of cyber-physical data collection system of risk factors mitigation and life expectancy prediction**
Asina Bopushova and Ruslan Isaev
 7. **Design, Implementation, and Security Analysis of the RSA Cryptosystem in Java**
Daniel Marinov, Dimitar Stoyanov and Adriana Borodzhieva
-

Session G

Chair: **Petar Kenderov**
Co-Chair: **Tzvetomir Vassilev**
Scientific Secretary: **Valentina Voinohovska**

Saturday, 27 June 2026

11:00 – 12:30

2Г.204, Hall Siemens, <https://meet1.uni-ruse.bg/b/qmf-4or-vvu-ovw>

- 1. Little Pages, Big Dreams: Scaling the Joy of Reading through Kids**
Iva Vasileva, Martin Zhekov, Donka Simeonova
- 2. VamOS**
Boris Zlatev, Vasil Startsev, Mihail Marinov, Neli Tihomirova
- 3. Authority Firewall: Latent Instruction-Hierarchy Monitoring for Safe Personalized Agents**
Aleksandar Slavov, Syuzan Feimova
- 4. ID EE**
Daria Ivanova, Elena Krusteva, Elisaveta Milanova, Ivan Porojanov, Rafail Nenov, Neli Tihomirova
- 5. Justicia**
Nikolay Velikov, Todor Branzov, Syuzan Feimova
- 6. Smart Squad**
Emma Georgieva, Gabriela Kogelova, Teodor Donchovski, Neli Tihomirova

DISCUSSIONS

13:15

2Г.204, Hall Siemens,

<https://meet1.uni-ruse.bg/b/awu-zhk-ngm>

THE BEST PAPERS AWARDS

Saturday, 27th June 2026

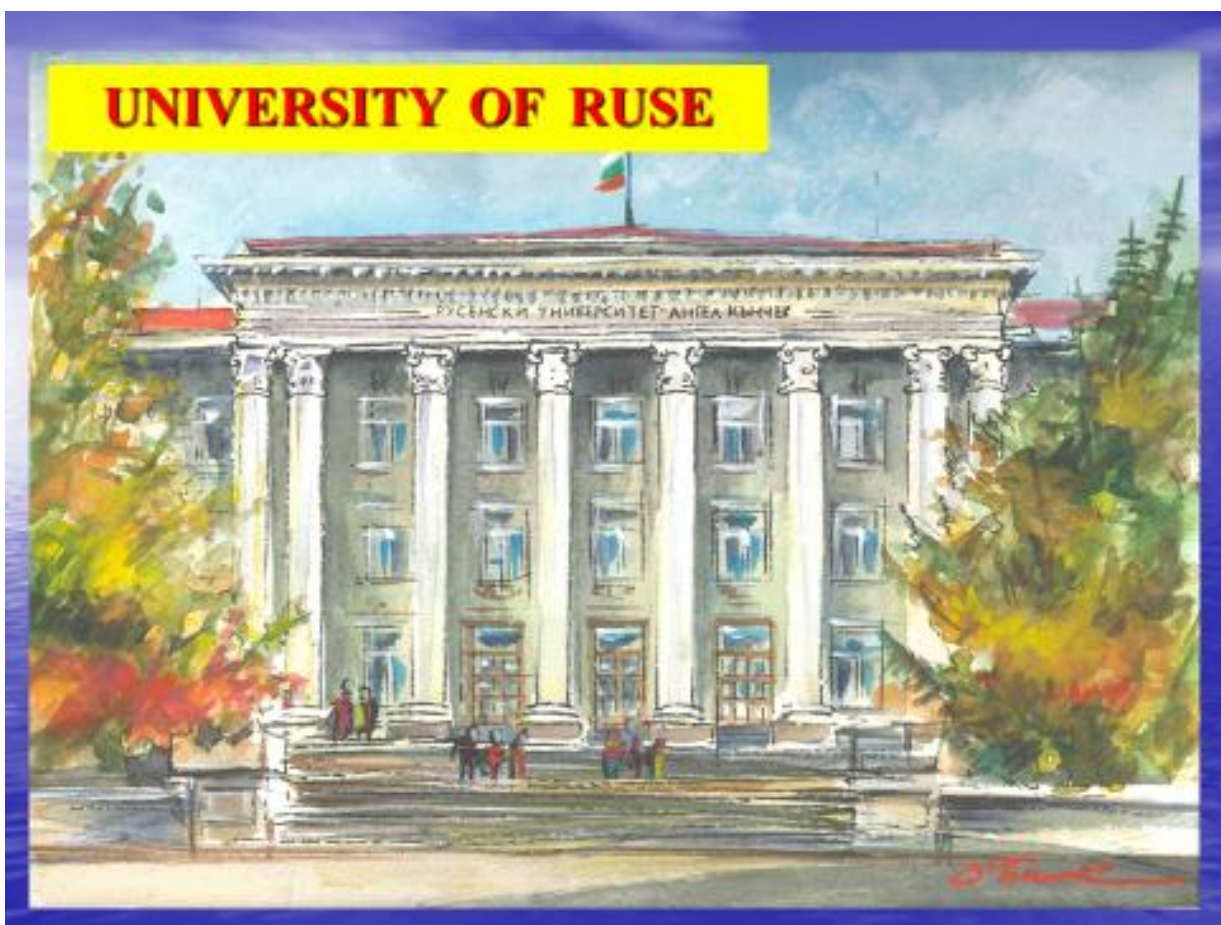
13:15

2Г.204, Hall Siemens,

<https://meet1.uni-ruse.bg/b/awu-zhk-ngm>

**The CHAIRS
of the PROGRAMME COMMITTEE
and
the ORGANIZING COMMITTEE
will bestow
a CRYSTAL PRIZE
to the authors of the best papers.**

Paintings from RUSE



RUSE - LIBRARY



RUSE - MUSEUM



REMARKS