

26th
INTERNATIONAL CONFERENCE
ON COMPUTER SYSTEMS
AND TECHNOLOGIES

CompSysTech '25

27-28 June 2025
University of Ruse
BULGARIA

P R O G R A M M E



**"WORK,
FINISH,
PUBLISH"**

Michael Faraday

◆ CONFERENCE OBJECTIVE

The CompSysTech'25 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 will be published in IEEE Xplore and indexed in Scopus.

CompSysTech'25 is organized by:

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

CompSysTech'25 is supported by the European Union-NextGenerationEU, through the National Recovery and Resilience Plan of the Republic of Bulgaria, project № BG-RRP-2.013-0001.



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**UNIVERSITY
OF RUSE**



**NATIONAL
RECOVERY AND
RESILIENCE PLAN**

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Janusz Jabłonowski	Poland	Tsvetozar Georgiev	Bulgaria
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Janusz Jabłonowski	Poland	Ville Leppänen	Finland
Jolanta Miliauskaitė	Lithuania	Yassine Meraihi	Algeria
Josemaria Alvarez-Rodriguez	Spain	Zoltan Geler	Serbia
Jouni Ikonen	Finland		

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◆ 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, 27th June 2025

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>



Sherin Moussa

**Professor, Director of Research, Head of
Computer Engineering Department, Université
Française d'Égypte**

Keynote on:

**Zero-trust management using AI: Untrusting
the trusted accounts in social media**



Saman Halgamuge

**Professor, Department of Mechanical
Engineering, School of Electrical, Mechanical
and Infrastructure Engineering, University of
Melbourne, Australia**

Keynote on:

**New Research in Explainable AI and its
application in Health**



Yassine Meraihi

Professor, University of Boumerdes, Algeria

Keynote on:

**Metaheuristics: Recent trends and
applications**

DISCUSSIONS

PROGRAMME SUMMARY

Saturday, 28th June 2025

9:00 – 10:45	Session A Number of papers: 8	Session C Number of papers: 8	Session E Number of papers: 6
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: 6
11:30 – 12:30	Session G (School students) Number of papers: 5		
28th June 13:30	THE BEST PAPERS AWARDS 2Г.204, Hall Siemens https://meet1.uni-ruse.bg/b/awu-zhk-ngm		

Session A

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

Saturday, 28 June 2025

9:00 – 10:45

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

ARTIFICIAL INTELLIGENCE

1. **Generative AI based Client Server Architecture for Mobile Computing**
Ezgi Yıldırım and Ensar Gul
2. **Pandora's black or white box: Are AI tools undermining evidence?**
Emily Williams, Jason Rodgers, Sebastian Chandler-Crnigoj, Karl Jones and Colin Robinson
3. **Anomaly Detection for Sunburst Attack Identification Using Hybrid AI: A stacking Ensemble and Attention Based LSTM Approach**
Dewan Aminul Islam, Abdul Ahad, Mohammad Moinul Islam, Md Mahabube Alahi Atik and Ahmad Fahmid
4. **Can AI perform Cultural Translation? Analyzing AI-based vs. human translation of Egyptian Comedy movies as a Case Study**
Nihad Fottouh and Sherin Moussa
5. **Evaluation of the Pronunciation of Tajweed Rules Based on DNN as a Step Towards Interactive Recitation Learning**
Dim Shaiakhmetov, Gulnaz Gimaletdinova, Selcuk Cankurt and Kadyrmamat Momunov
6. **Classification of Tents in Street Bazaars Using CNN**
Azamat Ibragimov, Ruslan Isaev, Remudin Reshid Mekuria, Dim Shaiakhmetov and Gulnaz Gimaletdinova
7. **Motion Planning with Obstacle Avoidance Within Complex Environment for Redundant Manipulators**
Kaloyan Yovchev
8. **Recognition of Leaf Diseases in Hazelnut Orchards with Drone Imagery by Deep Learning Models: Effectiveness of U-Net Model Variants**
Tulin Boyar, Salih Can Turan, Zeki Çıplak, Seyit Gazi Yıldız, Ali Sarıkaş, Kazim Yıldız and Önder Demir

DISCUSSIONS

10:45 – 11:00

Coffee Break

1.311

Session B

Chair: **Yassine Meraihi**

Co-Chair: **Anelya Ivanova**

Scientific Secretary: **Yuksel Aliev**

Saturday, 28 June 2025

11:00 – 12:45

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

MACHINE LEARNING

- 1. A Hybrid Machine Learning Approach for Thyroid Cancer Recurrence Prediction: Stacked Ensembles, Voting Models, and Feature Reduction**
M Saif Sartaz, Rubaiya Masnun, Md Mahabube Alahi Atik, Md Sabbir Ahmed, Bushra Intakhab, Mohammad Moinul Islam and Abdul Ahad
- 2. Optimization of Optical Network Units using Generalized Opposition Based-Learning Starfish Optimization Algorithm**
Sylia Mekhmoukh Taleb, Karim Baiche, Galina Ivanova, Amar Ramdane-Cherif, Yassine Meraihi and Seyedali Mirjalili
- 3. Comparing Machine Learning and Deep Learning Models with Attention Mechanisms for Multiple Source Code Authorship Attribution**
Richard Cernansky and Juraj Petrik
- 4. Food Image Understanding to Nutrients and Calories for Allergies and Patients Support Using Deep Learning Techniques**
Sherin Moussa
- 5. Detecting Human Emotions Using Machine Learning Techniques: A Comprehensive Approach**
Nehmeh Rmeiti, Ali Sabra, Aya Shibbi and Rossitza Marinova
- 6. Deep Learning-Based GNSS Jamming Classification Using Simulation-Generated Data and Time-Frequency Analysis**
Thuan Nguyen Dinh, Bao Le Thai, Hiep Hoang Van, Vinh La The, Hung Pham Ngoc and Tung Ta Hai
- 7. Advanced GNSS Spoofing Mitigation: A Gaussian Mixture Model Approach Based on Carrier Phase Double Differences**
Hieu Pham Quang, Hiep Hoang Van, Thuan Nguyen Dinh, Vinh La The, Hung Pham Ngoc and Tung Ta Hai
- 8. Classification of Fermented Seasoning Using Electronic Nose and Tree-Based Pipeline Optimization Tool (TPOT)**
Cyril James Coronacion, Jayson Galvez and Meo Vincent Caya

DISCUSSIONS

13:30

2Г.204, Hall Siemens,

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

THE BEST PAPERS AWARDS

Session C

Chair: **Noura Aknin**

Co-Chair: **Elitsa Ibryamova**

Scientific Secretary: **Viktor Velikov**

Saturday, 28 June 2025

9:00 – 10:45

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

COMPUTER HARDWARE & IoT

1. **Mathematical Approaches for Reliability and Fault Tolerance in IoT-based Systems: Current Trends and Future Directions**
Waleed Adel and Sherin M. Moussa
2. **Energy-Saving Techniques for Raspberry Pi**
Jaakko Pyrhönen and Jouni Ikonen
3. **Enhancing LoRa Network Efficiency: Using Edge Computing for Congestion Mitigation and Latency Reduction**
Oumaima Charif and Noura Aknin
4. **Study of the source drain tunneling current for FinFET at cryogenic temperature**
Abdelaaziz Lazzaz, Khaled Bousbahi, Mustapha Ghamnia and Fatiha Beladam
5. **Controlling finger movements of a 3D printed humanoid hand to grasp cylindrical and spherical objects**
Bozhidar Naydenov, Ivan Chavdarov, Ivaylo Georgiev and Valentin Nikolov

APPLICATION ASPECTS OF COMPUTER SYSTEMS AND TECHNOLOGIES

6. **Microwave-Based Detection of Early-Stage Renal Cell Carcinoma Using UHF Range Antenna**
Mehedi Zaman Sikder, Md Abrar Ibne Shakil, Abdul Ahad, Md Faisal Karim, Bushra Intakhab and Dewan Aminul Islam
7. **A Practical and Affordable EEG-Based Methodology for Detecting Neurodegenerative Diseases: Insights for Education and Research**
Yslam Orazov, Nurjemal Bayramova, Yakupmyrat Tokarov, Dovlet Taganov and Azat Babayev
8. **Effects of Sensor and Environmental Factors on Smartphone-Based Bicycle Road Monitoring**
Saku Tarkiainen and Jouni Ikonen

DISCUSSIONS

10:45 – 11:00

Coffee Break

1.311

Session D

Chair: **Amar Ramdane-Cherif**
Co-Chair: **Desislava Baeva**
Scientific Secretary: **Viktor Velikov**

Saturday, 28 June 2025

11:00 – 12:45

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

COMPUTER SOFTWARE & ALGORITHMS

- 1. Integrating Lightweight UCD into Scrum: A Canvas Approach for Non-Designers**
Md Tanvir Hasan, Annika Wolff and Antti Knutas
- 2. Intelligent Software Project Management: A Novel Approach to Risk Analysis and Resource Allocation**
Viktor Velikov and Galina Ivanova
- 3. Marine Predator Algorithm for Linear Antenna Arrays Optimization**
Sylia Taleb, Karim Baiche, Galina Ivanova, Amar Ramdane-Cherif, Yassine Meraihi and Seyedali Mirjalili

IMAGE PROCESSING & VISUALIZATION

- 4. Classification of the Stage of Dryness of Copra via Computer Vision Using Image Processing Techniques**
Joshua Joemer D. Bagunu, Wilson Philip L. Chavez and Cyrel O. Manlises
- 5. Yield Quantification of Morus Serrata Fruit Stages Using YOLOv8-based Identification**
Mark Jason Carandang, Jerome Yang and Cyrel O. Manlises
- 6. Effectiveness of SIFT Features in Enhancing Watermelon Leaf Disease Classification Accuracy**
Ramazan Kursun and Murat Koklu
- 7. Training a Neural Network for Partially Occluded Road Sign Identification in the Context of Autonomous Vehicles**
Gulnaz Gimaletdinova, Dim Shaiakhmetov, Madina Akpaeva, Mukhammadmuso Abduzhabbarov and Kadyrmamat Momunov

DISCUSSIONS

13:30

2Г.204, Hall Siemens,

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

THE BEST PAPERS AWARDS

Session E

Chair: **Leon Rothkrantz**

Co-Chair: **Galina Ivanova**

Scientific Secretary: **Pavel Zlatarov**

Saturday, 28 June 2025

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. Interactive Learning Tool: Demonstrating the Blum Blum Shub Number Generator Using MS Excel**
Adriana Borodzhieva
- 2. Enhancing Interactive Education through Virtual Reality and Augmented Reality: A New Approach to Personalized Learning Environments**
Abdyreshit Sadyk, Yslam Orazov, Muhammetmyrat Annamammedov, Lachyn Hojamova and Nurjemal Bayramova
- 3. Intelligent Mathematical Tutor based on ChatGPT or DeepSeek**
Cyril Rothkrantz, Siska Fitrianie and Leon Rothkrantz
- 4. Evaluating the Impact of Demographic and Technical Background Factors on Academic Performance of First-Year Computer Engineering Students**
Paola Shasivari, Aida Shasivari and Elinda Kajo Mece
- 5. Gamification of Student Assessment in a Distributed Educational System via RFID, Smart Simulators, and Blockchain**
Marian Ileana, Angel Popgeorgiev, Pavel Petrov and Vassil Milev
- 6. A Gameplay Model for a Serious Game to Reduce Library Anxiety**
Ivan Kratchanov

DISCUSSIONS

10:45 – 11:00

Coffee Break

1.311

Session F

Chair: **Manolo Dulva Hina**

Co-Chair: **Galina Ivanova**

Scientific Secretary: **Pavel Zlatarov**

Saturday, 28 June 2025

11:00 – 12:45

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

DATA & INFORMATION SECURITY

1. **Practical Aspect of the Functioning of an Automated Decision Support System**

Mikheil Donadze, Besik Beridze and Nino Devadze

2. **Lazy Minimal Data Warehouse Refresh**

Mikko Puonti, Timo Raitalaakso, Timo Aho and Toni Taipalus

3. **The Power of Data Visualization in Understanding Esophageal Cancer Based on Risk Factors: A Case from Arsi Zone, Ethiopia**

Mekia Shigute Gaso, Remudin Reshid Mekuria, Haji Aman Deybasso, Selcuk Cankurt and Burul Shambetova

4. **A Guided Kolmogorov-Arnold Network for Enhanced Security in Assistive UAV Technologies**

Amylia Ait Saadi, Manolo Dulva Hina, Bikram Pratim Bhuyan, Galina Ivanova and Amar Ramdane-Cherif

5. **Quantum cryptography technique using multi-qubit control gates**

Bayram Ashyrmiradovich Jumayev

6. **Multi-Objective Puma Optimizer (MOPO) for solving LEDs Placement in Indoor VLC Systems**

Abdelbaki Benayad, Amel Boustil, Sylia Mekhmoukh Mekhmoukh Taleb, Yassine Meraihi, Galina Ivanova and Amar Ramdane-Cherif

Session G

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

Saturday, 28 June 2025

11:30 – 12:30

2Г.204, Hall Siemens, <https://meet1.uni-ruse.bg/b/wde-g2z-3cj>

- 1. BalkanH0spital**
Dimitar Dimitrov, Nikol Dimitrova, Nikola Savov, Nikolay Nikolov, Neli Tihomirova
- 2. Pure Media**
Nikola Velikov, Syuzan Feimova
- 3. PulseNet – medical platform**
Nikolay Parishev, Syuzan Feimova
- 4. Quantum computer simulation with linear algebra, programming and hybrid quantum-classical machine learning"**
Aleksandar Slavov, Syuzan Feimova
- 5. EnergyFit**
Maksim Simeonov, Mihail Todev, Simeon Mitev, Neli Tihomirova

DISCUSSIONS

13:30

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THE BEST PAPERS AWARDS

Saturday, 28th June 2025

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

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