

**The Fifth International Conference on Innovations in Computing Research (ICR'26)
Berlin, Germany, August 24-26, 2026**

Conference Program

Monday, August 24, 2026

- 07.30-08.00** Conference Registration (Conference Registration Desk)
- 08.00-08.15** WELCOME
Professor Pascal Lorenz, University of Haute Alsace, France
Conference Chair
- Session-ICR-1** **Data Science**
08.20-10.20, August 24, 2026 (In-person)
- Session Chair:** **Robert Polding**
IE University, Spain
- 08.20-08.40** AI-Driven Immersive VR Biathlon for Dual-Task Cognitive-Motor Enhancement in Individuals with Disabilities
Rebecca Papa¹, **Mario Covarrubias**¹, Diego Sanchez¹, Arthur Alexis Guilhem¹, and Sara Arlati²
¹Politecnico di Milano, Department of Mechanical Engineering, Italy
²Institute of Intelligent Industrial Technologies and Systems for Advanced Manufacturing, Italy
- 08.40-09.00** Data-Driven Water Reuse Assessment in Textile Processes Using Multivariate Analysis and Unsupervised Learning
Ivan Gomes, Daniela Quintas, Andreia Cunha, and Ana L. Gonçalves
CITEVE, Centro Tecnológico das Indústrias Têxtil e Vestuário de Portugal
- 09.00-09.20** AI-Driven Predictive Cybersecurity for User Behavior Analysis in Government Institutions
Azza Mohamed¹ and Ahmed Al-Gindy²
¹ Faculty of Engineering and Computing, Liwa University, United Arab Emirates
² AZTech Training and Consultancy Company, United Arab Emirates
- 09.20-09.40** Methodological Aspects of the Fears Mitigation of Change Management in Wartime: Textual Data Analyses and Practical Solutions
Maryna Averkyna^{1,2} and Lauri Tabur³
¹Estonian Business School, Management, Entrepreneurship, & Innovation Excellence Knowledge Team, Estonia
²Lviv Polytechnic National University, Management Organization

Department, Ukraine
³Smartgrow OÜ, Estonia

09.40-10.00 Collaborative UAV Target Search Using QTRAN-Based CTDE in Multi-Agent Reinforcement Learning
Mohamed Amine Ghamri, Zakaria SAHRAOUI, and Nesrine Kamazi
Computer Science Department, Ecole Militaire Polytechnique, Algeria

10.00-10.20 Deep Learning-based Anomaly Detection in Industrial Images: Evaluation and Comparison of Modern Methods
Florian Hecht and **Marcus Grum**
University of Potsdam, Germany

10.20-10.40 **BREAK**

Session-ICR-2 **Computer Science and Computer Engineering Education**
10.40-12.40, August 24, 2026 (Remote)

Session Chair: **Viktoriia Korzhuk**
SIT department, ITMO University, Russia

10.40-11.00 ARCHIE: Automated Concept Extraction from Student Code for Formative Assessment in K-12 Computer Science
Aaja Christie and Anu G. Bourgeois
Georgia State University, Atlanta GA 30303, USA

11.00-11.20 Reframing Disinformation as an Educational Challenge in ICT and Computer Science Education
Hana Dubravova, Lenka Jakubcova, and **Kristyna Holubova**
Police Academy of the Czech Republic in Prague, Faculty of Security Management, Czech Republic

11.20-11.40 LLM Consortium Assessment of Critical Thinking in Student Essays
Diwakar Yalpi, Sruta Keerti Kasula, and Ravi Mukkamala
Old Dominion University, Norfolk, VA 23529, USA

11.40-12.00 Teaching Unicode and UTF-8 Encodings Through Practical Utility Tool Development: A Case Study for Computer Science Education
Nakhoon Baek^{1,2}
¹School of Computer Science and Engineering, Kyungpook National University, Republic of Korea
²Data-driven Intelligent Mobility ICT Research Center, Kyungpook National University, Republic of Korea

- 12.00-12.20** Design and Evaluation of a Tangible AR Learning Environment for Chemistry Education using 3D-Printed Physical Markers
Mónica Jara-Alvarado¹, Leslie Gaibor-Mora¹, Germán Rodríguez-Galán², and **Andrea López-López**¹
¹Universidad de las Fuerzas Armadas ESPE, Santo Domingo, Ecuador
²Universidad de las Fuerzas Armadas ESPE, Sangolquí, Ecuador
- 12.20-12.40** Enhancing Mathematical Reasoning Education with Data-Driven Fine-Tuning of Large Language Models
Pearl Pulikkottil¹, Deshao Liu^{2,3,4}, Junaid Akram^{1,5,6}, **Muhammad Nawaz**⁵, and Ali Anaissi^{1,5}
¹The University of Sydney, Australia
²Asia Pacific International College (APIC), Parramatta, NSW, Australia
³Lincoln Institute of Higher Education (LIHE), Sydney, Australia
⁴The Institute of International Studies (TIIS), Sydney, Australia
⁵University of Technology Sydney, Australia
⁶University of New South Wales, Australia
- 12.40-01.20** **LUNCH BREAK (ON YOUR OWN)**
- Session-ICR-3** **Computer and Network Security**
01.20-03.00, August 24, 2026, (In-Person/Online)
- Session Chair:** **Mario Covarrubias**
Politecnico di Milano, Italy
- 01.20-01.40** Privacy-Preserving Mobile Malware Detection and Payload localisation by means of Explainable Deep Learning
Francesco Mercaldo^{4,1}, Sebastian Schrittwieser², Patrick Kochberger³, Marta Petyx⁶, Patrizia Agnello⁶, Antonella Santone⁴, Fabio Martinelli⁵, and Paul Tavalato¹
¹Faculty of Computer Science, University of Vienna, Vienna, Austria
²Christian Doppler Laboratory for Assurance and Transparency in Software Protection, University of Vienna, Vienna, Austria
³Department of Computer Science and Security, St. Pölten University of Applied Sciences, Sankt Pölten, Austria
⁴Department of Medicine and Health Sciences “Vincenzo Tiberio”, University of Molise, Campobasso, Italy
⁵Institute of High Performance Computing and Networking, National Research Council of Italy (CNR), Rende, Italy
⁶Istituto Nazionale per l’Assicurazione contro gli Infortuni sul Lavoro, Roma, Italy
- 01.40-02.00** Fortifying a Small Water Utility Against Hybrid Threats
Lauri Anttila^{1,2}
¹University of Jyväskylä, Finland
²61N Solutions Oy, Tampere, Finland

02.00-02.20 A Quantum-Safe “Subscriber Concealed Identifier” Scheme for 6G Systems
Geir Køien
University of South-Eastern Norway (USN), Norway

02.20-02.40 Fault-Tolerant Transaction Scheduling for Stable Distributed Systems
Ariful Islam Emon and **Pavan Poudel**
University of Houston-Clear Lake, Houston, USA

02.40-03.00 A Unified Experimental Evaluation of Guardrail Mechanisms for LLM Agents
Roman Safiullin, Viktoriia Korzhuk, Akylzhan Kerimbay, Roman Patrikeev
SIT department, ITMO University, Russia

03.00-03.20 **BREAK**

03.20-04.20 **Keynote Speech: Data-driven decision support in complex situations-IRIS Integrated Reachback Information System as hybrid optimization frameworks**

Professor Stefan Wolfgang Pickl
DKKV, COMTESSA, Munich, Germany

07.30-09.30 **CONFERENCE DINNER**

Tuesday, August 25, 2026

Session-ICR-4 Health Informatics and Biomedical Imaging + IoT
07.40-09.20, August 25, 2026 (In-person/Remote)

Session Chair: Maryna Averkyna
Estonian Business School, Estonia

07.40-08.00 Quantifying Healthcare Decision Reliability with N-Size Datasets: A Demographic and Incidence Metric Approach
Marco Rocchetti
University of Bologna, Department of Computer Science and Engineering, Italy

- 08.00-08.20** From Smear to Screen: Harnessing Machine Learning and Deep Learning to Transform Automated Malaria Diagnosis: A Systematic Review
Ghofrane Bousbih and Suhila Sawesi
 Department of Information Sciences and Technologies (IST), College of Computing, Grand Valley State University, Michigan, United States
- 08.20-08.40** IoT-Based Solar Power Forecasting with LSTM, GRU, and Transformer Models
Peter Kolok, Michal Hodoň, Lukáš Čechovič, and Ján Kapitulík
 Faculty of Management Science and Informatics, University of Žilina, Slovakia
- 08.40-09.00** Towards Clinically Interpretable Heart Disease Prediction: A Comparative Analysis of Explainability Methods for Machine Learning Models
Firas Frouja, Mahdi Bedoui, and Mortadha Ghnimi
 College of Computing, Grand Valley State University, USA
- 09.00-09.20** Interpretable Diagnosis of Short Algebra Responses with Lightweight Features
Wiam Belouard, Davis Joseph, Sara El Kardi, and Antoun Yaacoub
 Aivancity, School for Technology, Business & Society Villejuif, France
- 09.20-10.20** **Panel: Innovations in Data Science**
Moderator: **Kazem Taghva**, University of Nevada, USA
Panelists: **Marcus Grum**, University of Potsdam, Germany
Chung-Chian Hsu, National Yunlin University of Science and Technology, Taiwan
Cecilia E. Nugraheni, Catholic University, Indonesia
- 10.20-10.40** **BREAK**
- Session-ICR-5** **Data Science**
10.40-12.40, August 25, 2026 (In-person)
- Session Chair:** **Kazem Taghva**
 University of Nevada, USA
- 10.40-11.00** Real-Time Student Engagement Monitoring via Eye-Region Detection Using YOLO
Francesco Mercaldo¹, Antonella Santone¹, and Fabio Martinelli²
¹Department of Medicine and Health Sciences “Vincenzo Tiberio”, University of Molise, Campobasso, Italy

²Institute of High Performance Computing and Networking, National Research Council of Italy (CNR), Rende, Italy

11.00-11.20

Utilizing Convolutional Neural Networks for Plant Disease Detection
Faisal AlZyoud¹, Monther Tarawneh², Ibrahim Altarawni³, and Ruba S Al-falah⁴

¹Computer Science Department, Isra University, Jordan

²Information Technology Department, Tafila Technical University, Jordan

³Computer Science Department, Tafila Technical University, Jordan

⁴Ministry of Local Administration, Jordan

11.20-11.40

An Artifact-Based Framework for Explainable Metaheuristic Optimization
Cecilia E. Nugraheni, Luciana Abednego, Lionov Wiratma, and Husnul Hakim

Center for Data Science and Artificial Intelligence System, Faculty of Science, Parahyangan Catholic University, Indonesia

11.40-12.00

Revisiting Zipf's Law in ICD-10 Diagnosis Code Distributions
Sobhan Ebrahimi Azar¹, Jennifer Vanderlaan², and **Kazem Taghva**¹

¹Department of Computer Science, University of Nevada, USA

²School of Nursing, University of Nevada, USA

12.00-12.20

Data-Driven Sign Language Recognition Using Hybrid and Graph-Based Models for Real Time Edge Intelligence

Samar Mouti¹, **Samer Rihawi**¹, Hani Alchalabi¹, Sulafa Abdalla¹, and Mohamed Abushohada²

¹Liwa University, United Arab Emirates

²Gulf Medical University, United Arab Emirates

12.20-12.40

A Deep Learning Model with Rolling Variational Mode Decomposition and Multi-Dimensional Temporal Features for Traffic Flow Prediction

Chung-Chian Hsu and Shih-Mao Liu

National Yunlin University of Science and Technology, Taiwan

12.40-01.20

LUNCH BREAK (ON YOUR OWN)

Session-ICR-6

Health Informatics and Biomedical Imaging

01.20-03.00, August 25, 2026 (Remote)

Session Chair:

Azza Mohamed

Liwa University, United Arab Emirates

01.20-01.40

Gender Differences in Perceived Health and Functional Ability Among Institutionalized Older Adults with Age-Related Macular Degeneration
Vanessa Zorrilla-Muñoz^{1,2}, Angel Parra-Sanchez¹, Ines Juaristi³, Manuel Cuerno⁴, Daniela Luz Moyano^{2,5,6}, María Silveria Agulló-Tomás^{2,5}, Jose Maria Sabater-Navarro^{1,7}, Nicolas Garcia-Aracil^{1,7}, and Gema Martinez-Navarrete^{1,8}

¹Bioengineering Institute, Miguel Hernandez University, 03202, Elche, Spain

²University Institute on Gender Studies, University Carlos III of Madrid, Getafe, 28903 Madrid, Spain

³Department of Pharmacy and Nutrition, Faculty of Biomedical and Health Science, Universidad Europea de Madrid, 28670, Villaviciosa de Odon, Madrid, Spain

⁴Department of Mathematics, CUNEF Universidad, Madrid, Spain

⁵Department of Social Sciences, University Carlos III of Madrid, 28903, Getafe, Madrid, Spain

⁶Departamento of Health Sciences, Universidad Nacional de La Matanza, San Justo, Buenos Aires, Argentina

⁷Department of Systems Engineering and Automation, Miguel Hernandez University, 03202, Elche, Spain

⁸Department of Histology and Anatomy, Miguel Hernandez University, 03550, Sant Joan d'Alacant, Spain

01.40-02.00

Intraoperative Real-Time IR Spectral Difference between Benign and Malignant Brain Tumours

Zina Ali Abed^{1,2}, Hadeel K. Aljobouri¹, and Yuksel Yashar Mohammed³

¹Al-Nahrain University, College of Engineering, Department of Biomedical Engineering, Baghdad, Iraq

²Gilgamish University, College of Technical Engineering, Department of Medical Instrumentation Engineering Techniques, Baghdad, Iraq

³Medical City, GHAZI AlHariri Surgical Specialty Hospital, Department of Neurosurgery, Baghdad, Iraq

02.00-02.20

Machine Learning-Based Prediction of Heart Disease Using a Merged UCI Dataset and Web Application

Diana Atieno Opiyo and Suhila Sawesi

Department of Information Sciences and Technologies (IST), College of Computing, Grand Valley State University, USA

02.20-02.40

Conformance Checking of Healthcare Processes Using Knowledge Graphs and Data-Aware Temporal Logic

María José Ibáñez¹, Joaquín Ezpeleta², and **Javier Fabra**²

¹Universidad de La Rioja, Spain

²Aragon Institute for Engineering Research (I3A), Universidad de Zaragoza, Zaragoza, Spain

02.40-03.00 Federated Imaging and Multi-Omics Integration for Rare Disease Modeling
Ali Alyatimi^{1,2}, Ahmed Freidoon Fadhil^{3,4,5,6}, Muhammad Atif Iqbal¹, Vera Chung¹, and **Ali Anaissi**¹
¹School of Computer Science, Faculty of Engineering, The University of Sydney, Australia
²Department of Computer and Information Technology, Jazan College of Technology, Technical and Vocational Training Corporation (TVTC), Riyadh, Saudi Arabia
³James Cook University, College of Science and Engineering, Brisbane, Australia
⁴Victoria University, Brisbane, Australia
⁵Asia Pacific International College (APIC), Brisbane, Australia
⁶Kaplan Business School (KBS), Brisbane, Australia

03.00-03.20 **BREAK**

03.20-04.20 **Keynote Speech: Recent Advances in Post-Quantum Cryptography**

Professor Dr. María Isabel González Vasco
Catedrática de Universidad, Spain

Wednesday, August 26, 2026

Session-ICR-7 **Computer Science and Computer Engineering Education**
07.40-09.20, August 26, 2026 (In-person)

Session Chair: **Tihomir Orehovački**
Juraj Dobrila University of Pula, Croatia

07.40-08.00 Adoption of AI-Assisted Code Generation in Software Development: Insights from GitHub Copilot Trainings
Heidi Koivisto^{1,2}, Jarmo Koivusaari², and Katja Saarela²
¹Tampere University, Tampere, Finland
²Eficode Group Ltd, Helsinki, Finland

08.00-08.20 CodeBreaker: Design and Multidimensional Evaluation of a Puzzle-Based Game for Introductory Programming Education
Adrian Drozina, Toni Bileta, and **Tihomir Orehovački**
Juraj Dobrila University of Pula, Faculty of Informatics, Croatia

08.20-08.40 AI-Enhanced VR Shooting for Inclusive Training for young students with disabilities
Mario Covarrubias¹, Giacomo Giovanni Moroni¹, Camilla Previte¹, Niccolo Marino¹, Gabriele Criscino¹, and Sara Arlati²
¹Politecnico di Milano, Department of Mechanical Engineering, Italy
²Institute of Intelligent Industrial Technologies and Systems for Advanced Manufacturing, Italy

08.40-09.00 Towards Enhancing Digital Marketplace User Experience for Students: Human-Centered Design Study of Freelancing Platform Interface Optimization
Mahmoud Bakkar
Department of Computer Science and Information Technology, Abu Dhabi University, UAE

09.00-09.20 When Expectations Do Not Match Experience: Evaluating Student Perceptions of Capture-the-Flag (CTF) Cybersecurity Learning
Mahibul Abdullah Ibne Momin and Marko Helenius
Tampere University, Finland

09.20-10.20 **Panel: Innovations in Health Informatics**

Moderator: **Robert Polding**, IE University, Spain

Panelists: **William Klement**, Winthrop University, USA
Marco Roccetti, University of Bologna, Italy
Vanessa Zorrilla-Muñoz, Miguel Hernandez University, Spain

10.20-10.40 **BREAK**

Session-ICR-8 **Data Science + Quantum Computing**
10.40-12.20, August 26, 2026 (**Remote**)

Session Chair: **Faisal AlZyoud**
Isra University, Jordan

10.40-11.00 RADAR-Q: Resource-Aware Distributed Asynchronous Routing for Entanglement Distribution in Multi-Tenant Quantum Networks
Chenliang Tian¹, Zebo Yang², **Raj Jain**¹, Ramana Kompella³, Reza Nejabati³, Eneet Kaur³, Aiman Erbad⁴, Mohamed Abdallah⁵, and Mounir Hamdi⁵
¹Department of Computer Science and Engineering, Washington University in St. Louis, USA
²Department of Electrical Engineering and Computer Science, Florida Atlantic University, USA

³Quantum Lab, Cisco, USA

⁴Department of Computer Science and Engineering, Qatar University, Qatar

⁵Department of Science and Engineering, Hamad Bin Khalifa University, Qatar

11.00-11.20 Co-Coding with ChatGPT: Building a BCI Data Receiver and Evaluating AI-Assisted Development

Tuomo Lahtinen and Andrei Costin

Faculty of Information Technology, University of Jyväskylä, Finland

11.20-11.40 Patent-Market Correlations via Fuzzy Technology Transfer Analysis
Vincenzo Dentamaro¹, **Felice Franchini**¹, Stefano Galantucci², and Giuseppe Pirlo¹

¹Department of Computer Science, University of Bari Aldo Moro, Italy

²Department of Agricultural Science, Food, Natural Resources and Engineering, University of Foggia, Italy

11.40-12.00 Dynamic ALS: A Unified Model for Mitigating Short-Term Noise and Long-Term Interest Drift in Streaming Recommendations

Ting Cao¹, Tathagata Bhattacharya², Taha Tekreeti³, Xiaopu Peng⁴, JP Tang⁵, and Xiao Qin⁶

¹ Utah Valley University, Orem, UT, USA

² Auburn University at Montgomery, USA

³ Auburn University, USA

⁴ Talladega College, USA

⁵ Utah Valley University, USA

⁶ Auburn University, USA

12.00-12.20 Explainable Plant Stress Classification using Vision-Language Models and Natural Language Explanations

Vito Domenico Amodio¹, Lerina Aversano¹, Vincenzo Dentamaro², and **Felice Franchini**²

¹Department of Agricultural Science, Food, Natural Resources and Engineering, University of Foggia, Italy

²Department of Computer Science, University of Bari Aldo Moro, Italy

12.20-12.40 **BREAK**

12.40-01.40 **Keynote Speech: Beyond Technology: How Digital Transformation Is Reshaping Learning**

Professor Dr. Nadire Cavus

Near East University, Cyprus