The Third International Conference on Innovations in Computing Research (ICR'24)
Athens, Greece, August 12-14, 2024

Conference Program

Monday, August 12, 2024

07.30-08.00   Conference Registration (Conference Registration Desk)

08.00-08.15   WELCOME
Professor Hiroaki Kikuchi, Meiji University, Japan
Conference Chair

ICR24-Session-1-I   Data Science
08.20-10.20, August 12, 2024 **(In-person)**

Session Chair: **Robert Polding**
IE University, Spain

08.20-08.40   Extracting Official Agencies' Communication Patterns During the
COVID-19 Pandemic: A Text Mining Approach
Shady Salama[1], Akira Matsui[2], and Takashi Kamihigashi[1]
[1]Kobe University, Japan
[2]Yokohama National University, Japan

08.40-09.00   The Hybrid Model Combination of Deep Learning Techniques, CNN-
LSTM, BERT, Feature Selection, and Stop Words to Prevent Fake News
Justin Hui San Zhao and Thair Al-Dala'in
Western Sydney University, Australia

09.00-09.20   The Detection of Misstated Financial Reports Using XBRL Mining and
Intelligible MLP
Duarte Trigueiros
University Institute of Lisbon, Portugal

09.20-09.40   University Student Enrollment Prediction: A Machine Learning
Framework
Ghazi Al-Naymat and Mohammed Azmi Al-Betar
Ajman University, UAE

09.40-10.00   *v*Throt: Fine-Grained, Virtual I/O Resource Redistribution Scheme
Taehoon Kim[1], Jaechun No[1], and **Sung-soon Park[2]**
[1]Sejong University, Korea
[2]Anyang University and Gluesys Co. LTD, Korea

10.00-10.20	Prediction of Automotive Vehicles Engine Health Using MLP and LR
	Hussein Jammal, Joseph El Houssainy, Farah Srour, Mostafa Tormos, Riad Sakr, and **Roger Achkar**
	American University of Science and Technology, Lebanon

| 10.20-10.40 | **BREAK** |

ICR24-Session-2-IR Computer and Network Security
10.40-12.20, August 12, 2024 (In-Person/Remote)

| **Session Chair:** | **Haneen Heyasat** |
| | South Australian Institute of Business & Technology, Australia |

10.40-11.00	Towards Developing Generative Adversarial Networks based Robust Intrusion Detection Systems for Imbalanced Dataset using Hadoop-PySpark
	Md Abdur Rahman and Hossain Shahrier
	University of West Florida, United States

11.00-11.20	Enhancing Cybersecurity through Blockchain: An Analysis of Solutions for Threats and Vulnerabilities – An Agency Theory Perspective
	Haneen Heyasat[1] and Baber Bhatti[2]
	[1]South Australian Institute of Business & Technology (SAIBT), Australia
	[2]University of South Australia, Australia

11.20-11.40	Developing a Decentralized Blockchain Framework with Hyperledger and NFTs for Secure and Transparent Patient Health Records
	Huwida E. Said[1], Nedaa B. Al Barghuthi[2], Sulafa M. Badi[3], Faiza Hashim[4], and Shini Girija[1]
	[1]Zayed University, Dubai, UAE
	[2]Higher Colleges of Technology, Sharjah, UAE
	[3]The British University in Dubai, Dubai, UAE
	[4]United Arab Emirates University, Al Ain, UAE

11.40-12.00	A Novel Approach Using OCR Technology to Combat Deceptive Click Attacks
	Yu-Sheng Lian[1], **Fu-Hau Hsu**[1], Yan-Ling Hwang[2], Jian-Xin Chen[1], Jian-Hong Huang[1], Hao-Jyun Wang[1], and Min-Hao Wu[3]
	[1]National Central University, Taiwan
	[2]Chung Shan Medical University, Taiwan
	[3]Xiamen City University, China

12.00-12.20	Investigating and Managing Security Threats in Hospitals: Case Study
	Mahmoud Bakkar
	Abu Dhabi University, United Arab Emirates

12.20-01.20	**LUNCH BREAK (ON YOUR OWN)**

ICR24-Session-3-I   **Computer Science and Computer Engineering Education**
01.20-03.00, August 12, 2024, (In-Person)

Session Chair: **Roger Achkar**
American University of Science and Technology, Lebanon

01.20-01.40   Sensitivity of Automated SQL Grading in Computer Science Courses
Benard Wanjiru, Patrick van Bommel, and Djoerd Hiemstra
Radboud University, The Netherlands

01.40-02.00   Empowering Young Students with Disabilities through AR-enabled
Hydroponic Agriculture.
Mario Covarrubias[1], Emma Mencaci[2], Sabrina Roma[2], Domenico
Bodega[3], and Alessandra Calcagno[1]
[1]Politecnico di Milano, Italy
[2]ASPOCOLLEGE, Italy
[3]Università Cattolica del Sacro Cuore, Italy

02.00-02.20   Analyzing the Impact of a Deep Learning Attention Compensation System on Data
Labelling Productivity in Individuals with Developmental Disabilities
Yong-Man Ha[1] and **Jong-Wook Jang** [2]
[1]Fields Corporation, Korea
[2]Dong-Eui University, Republic of Korea

02.20-02.40   A Comprehensive Service Blueprint for Enhancing Coopetition Networks
Agostinho da Silva [1,2,3,4] and Antonio J. Marques Cardoso[1]
[1]University of Beira Interior, Portugal
[2]ISG – Business & Economics School, Portugal
[3]CEFAGE-UE, Center for Advanced Studies in Management and
Economics, Portugal
[4]MARE, Marine and Environnemental Sciences Centre, Portugal

02.40-03.00   Curriculum Reform with Stakeholder Participation for Quality Control
Vasso Stylianou[1], Florent Domenach[2], Andreas Savva[1], and George
Portides[1]
[1]University of Nicosia, Nicosia, Cyprus
[2]Akita International University, Japan

03.00-03.20   **BREAK**

Session Chair: **Huwida Said**
Zayed University, UAE

03.20-03.40 Towards Automated Policy Predictions via Structured Attribute-Based Access Control
Anna Bamberger and Maribel Fernández
King's College London, UK

03.40-04.00 An Efficient and Reliable scRNA-seq Data Imputation Method Using Variational Autoencoders
Widad Alyassine[1], Anuradha Samkham Raju[2], Ali Braytee[3], **Ali Anaissi[1,3]**, and Mohamad Naji[3]
[1]The University of Sydney, Australia
[2]Victorian Institute of Technology, Australia
[3]The University of Technology Sydney, Australia

04.00-04.20 Early Prediction of Sepsis Utilizing Multi-Branches Multi-Tasks Hybrid Deep Learning Model
Pei-Yi Hao
National Kaohsiung University of Science and Technology, Taiwan

04.20-04.40 A Comparative Analysis of Random Forest and Support Vector Machine Techniques on the UNSW-NB15 Dataset
Madlyn Manneh[1], Patrick Ansah[1], **Sumit Kumar Tetarave[1]**, Manoj Ranjan Mishra[1], and Ezhil Kalaimannan[2]
[1]KIIT University, India
[2]University of West Florida, USA

04.40-05.00 Medical Image Character Recognition Using Attention-Based Siamese Networks for Visually Similar Characters with Low Resolution
Efosa Osagie, Wei Ji, and Na Helian
University of Hertfordshire, UK

05.00-05.20 Toward Smart Bicycle Safety: Leveraging Machine Learning Models and Optimal Lighting Solutions
Mustafa Abdulfattah Habeeb[1], Yahya Layth Khaleel[1], and A.S. Albahri[2]
[1]Tikrit University, Iraq
[2]Imam Ja'afar Al-Sadiq University, Iraq

05.20-05.40	Comparing Convolutional Neural Networks and Transformers in a Points-of-Interest Experiment
	Paraskevas Messios[1], Ioanna Dionysiou[2], and Harald Gjermundrød[2]
	[1]European University Cyprus, Cyprus
	[2]University of Nicosia, Cyprus

05.40-06.40	**Keynote Speech: Self-Organization as a Key Principle to Adaptive Intelligence**
	Professor Birgitta Dresp-Langley
	UMR 7357 CNRS-Strasbourg University, France

07.30-09.30	**CONFERENCE DINNER**

Tuesday, August 13, 2024

ICR24-Session-5-IR Data Science
07.00-09.20, August 13, 2024 (In-person/Remote)

Session Chair:	**Kazem Taghva**
	University of Nevada, USA

07.00-07.20	Bayesian Optimization-Based CNN Model for Blood Glucose Estimation Using Photoplethysmography Signals
	Saifeddin Alghlayini[1], **Mohammed Azmi Al-Betar[1]**, Mohamed Atef[2], and Ghazi Al-Naymat[1]
	[1]Ajman University, UAE
	[2]United Arab Emirates University, UAE

07.20-07.40	Comparative Analysis of Preprocessing Techniques for KNN Classification on the Diabetes Dataset
	Vaman A. Saeed, Nawzat Sadiq Ahmed, and Bareen Haval Sadiq
	Duhok Polytechnic University, Iraq

07.40-08.00	Exploratory Analysis of Gamblers' Financial Transactions to Mine Behavioral Pattern Data
	Mohsen Larni[1], Sepideh Farivar[1], Piyush Puranik[1], Kasra Ghaharian[2], Lukasz Golab[3], and **Kazem Taghva[1]**
	[1]University of Nevada, USA
	[2]International Gaming Institute, University of Nevada, USA
	[3]University of Waterloo, CA

08.00-08.20	Comprehensive Analysis of Iris Dataset Using K-Mean and Fuzzy K-Mean Clustering Algorithm **Bareen Haval Sadiq**, Nawzat Sadiq Ahmed, and Omar Muhammed Ahmed Duhok Polytechnic University, Iraq
08.20-08.40	Gender and Age Extraction from Audio Signal Using Convolutional Neural Network, MFCC and Spectrogram **Fazia Karaoui**[1], Rachida Djeradi[2], and Amar Djeradi[2] [1]University of science and technology LCPT/URSL/AALA, Algeria [2]University of science and technology LCPTS/FGE, Algeria
08.40-09.00	Comparative Analysis of Decision Tree Algorithms Using Gini and Entropy Criteria on the Forest Cover Types Dataset Omar M. Mustafa[1], Omer M. Ahmed[2], and **Vaman A. Saeed**[3] [1]University of Zakho, Iraq [2]Duhok Polytechnic University, Iraq [3]Duhok Polytechnic University, Iraq
09.00-09.20	A Comparative Study of Speed Measurement Using Radar Guns and Pneumatic Counter **Soledad Segarra-Morales** and Adriana Torres Moreno Universidad Técnica Particular de Loja, Ecuador

09.20-10.20	**Panel**: **Breakthroughs in Data Science**	
	Moderator:	**Guillermo Francia**, University of West Florida, USA
	Panelists:	**Roger Achkar**, American University of Science and Technology, Lebanon **Rajeev Kanth**, Savonia University of Applied Sciences, Finland **Kazem Taghva,** University of Nevada, USA

10.20-10.40	**BREAK**

ICR24-Session-6-IR **Health Informatics and Digital Imaging**
10.40-12.20, August 13, 2024 (In-person/Remote)

Session Chair: **Benard Wanjiru**
Radboud University, The Netherlands

10.40-11.00	A survey of AI Utilisation in High-Throughput Screening Systems Using Stem Cell Models **Lu Cao**[1], Verena Schwach[2], and Fons Verbeek[1] [1]Leiden Institute of Advanced Computer Science, The Netherlands

[2]University of Twente, Enschede, The Netherlands

11.00-11.20	Health Data Trustees: A Business Model Perspective **Sarah Kilz** and Marija Radic Fraunhofer Center for International Management and Knowledge Economy IMW, Germany

11.20-11.40	Fuzzy SVM and IoT Technology for Improved Fall Detection in Individuals with Non-Voluntary Movements Mohammad Kchouri[1], **Hussein Hazimeh**[2], Norharyati Harum[1], Moustafa Harb[3], and Firas Sami Fayad[4] [1]Universiti Teknikal Malaysia Melaka, Malaysia [2]Al Maaref University, Lebanon [3]PROTEL IoT Lab, Lebanon [4]Islamic University of Lebanon, Lebanon

11.40-12.00	Predicting Coronary Heart Disease through Machine Learning Algorithms **Savina Mariettou**[1], Constantinos Koutsojannis[2], and Vassilios Triantafillou[1] [1]University of Peloponnese, Greece [2]University of Patras, Patras, Greece

12.00-12.20	The Potential of Digital Twins in Healthcare: Evaluation of a Clinical Decision Support System for Chronic Inflammatory Bowel Disease Marija Radic[1], Agnes Vosen[1], **Anika Teichert**[1,] Friederike Bach[1], Ann Christina Foldenauer[2], Kevin Frank[2], Michaela Köhm[2,3], and Irina Blumenstein[2,3] [1]Fraunhofer Center for International Management and Knowledge Economy IMW, Germany [2]Fraunhofer Institute for Translational Medicine and Pharmacology ITMP, Germany [3]Johann Wolfgang Goethe University Clinic, Frankfurt, Germany

12.20-01.20	**LUNCH BREAK (ON YOUR OWN)**

ICR24-Session-7-IR **Computer and Network Security**
01.20-03.00, August 13, 2024 **(In-person/Remote)**

Session Chair:	**Guillermo Francia** University of West Florida, USA

01.20-01.40	Survey on Cryptoprocessors Advances and Technological Trends **Elena Kakoulli**[1,2] and Eleftherios Zacharioudakis[1,3] [1]Neapolis University Pafos, Cyprus [2]Cyprus University of Technology, Cyprus

[3]National Technical University of Ukraine, Ukraine

01.40-02.00	Analysis of eSIM/iSIM for Critical Communications **Shahzana Liaqat** and Geir Myrdahl Køien University of South-Eastern Norway, Norway
02.00-02.20	Authenticating IoT Devices using Multimodal Biometric and Blockchain: A Personalised Healthcare Scenario **Farnaz Farid** and Farhad Ahamed Western Sydney University, Australia
02.20-02.40	Towards Automated Access Control Policy Mining via Structured Attribute-Based Access Control **Anna Bamberger** and Maribel Fernández King's College London, UK
02.40-03.00	Machine Learning Systems for Connected and Autonomous Vehicle (CAV) Synthesized Datasets **Guillermo Francia**, III, Ben Cyphers, and Eman El-Sheikh University of West Florida, USA
03.00-03.20	**BREAK**

ICR24-Session-8-IR **Health Informatics and Digital Imaging + Computer Science/Computer Engineering Education**
03.20-05.40, August 13, 2024 (In-Person/Remote)

Session Chair: **Shady Salama**
Kobe University, Japan

03.20-03.40	Inclusive Opportunities for Young Students with Disabilities through Mixed Reality Emma Mencaci[1], **Mario Covarrubias Rodriguez[2]**, Sabrina Roma[1], and Domenico Bodega[3] [1]ASPOCOLLEGE, Italy [2]Politecnico di Milano, Italy [3]Università Cattolica del Sacro Cuore, Italy
03.40-04.00	Detection and Classification of Skin Cancer Using Custom-built CNN **Mazdak Maghanaki**, Mohammad Shahin, F. Frank Chen, and Ali Hosseinzadeh The University of Texas at San Antonio, USA

04.00-04.20	Technological Influence on the Measurement of Quality of Life in Persons with Autism Spectrum Disorder

Gema Benedicto-Rodriguez[1], **Vanessa Zorrilla-Muñoz**[2,3], Eduardo Fernández [2,4], and Jose Manuel Fernández [1]
[1]Polytechnic University of Cartagena, Spain
[2]Miguel Hernandez University, Spain
[3]University Institute on Gender Studies, Spain
[4]Biomedical Research Network Center (CIBER-BBN), Spain

04.20-04.40	Unveiling Depression: Monitoring Daily Activity Changes for Anomalies

Rana Shaker[1], Nada Ibrahim[1], and Slim Abdennadher[2]
[1]German University in Cairo, Egypt
[2]German International University, Egypt

04.40-05.00	Categorization of Arabic Medical Questions Using a Deep Learning Approach

Mohammed Bahbib[1], Lahcen Tamym [2], Majid Ben Yakhlef [1], and Lyes Benyoucef [2]
[1]Laboratory of Engineering Sciences Faculty Polydisciplinaire Taza, Morocco
[2]Aix-Marseille University, University of Toulon, France

05.00-05.20	Agent-Based Modeling: Investigating Technological Perception's Impact on Quality of Life in Older Adults with Age-Related Macular Degeneration

Ángel Parra-Sanchez[1], **Vanesa Zorrilla-Muñoz**[2,3], Gema Martinez-Navarrete[1], and Eduardo Fernández [1,4]
[1]University Miguel Hernández of Elche, Spain
[2]Miguel Hernandez University, Spain
[3]University Institute on Gender Studies, Spain
[4]Biomedical Research Network Center (CIBER-BBN), Spain

05.20-05.40	Wireless Polysomnography Design to Identify Sleep Stages

Abbas Lateef Salman, Auns Qusai Al-Neami, and Dunia Tahseen Nema Al-Aridhi
Al-Nahrain University, Iraq

05.40-06.40	**Keynote Speech: Data Protection Mechanisms and Reidentification Risk Using Metric Learning**

Professor Vicenç Torra
Umeå University, Sweeden

Wednesday, August 14, 2024

Computer Science/Computer Engineering Education
07.00-09.20, August 14, 2024 (Remote)

Session Chair: **Elena Kakoulli**
Neapolis University Pafos, Cyprus

07.00-07.20 Code Smells for Assessing and Improving Students' Coding Skills and Practices
Ricardo Lozano, Rajasoundarya Senthil Prabhu, and Yoonsik Cheon
The University of Texas at El Paso, USA

07.20-07.40 An Investigation on Assessment Strategies, Student Engagement, and Retention for Large Cohorts Affected by COVID Learning Disruptions
Jeannette Chin
University of East Anglia, UK

07.40-08.00 Self-Organization as a Key Principle of Adaptive Intelligence
Birgitta Dresp-Langley
UMR 7357 CNRS-Strasbourg University, France

08.00-08.20 Evaluating Generative AI Tools for Visual Asset Creation - An Educational Approach
Aesheh Essa and Mohammad Lataifeh
University of Sharjah, UAE

08.20-08.40 Review of Learning Analytics Dashboards for Students
Krishnavamsi Gujju, Sahithi Bandi, and **Marcia Moraes**
Colorado State University, USA

08.40-09.00 Advancing Learning Systems: Enhancing Explanation Generation through AI Innovations
Youmna Moussa
University of Leeds, Leeds, UK

09.00-09.20 Exploratory Analysis of Driver Data on University Campus: A Case Study in Ecuador
Yasmany García-Ramírez, Anderson Castillo, and Adrián Diaz
Universidad Técnica Particular de Loja, Ecuador

09.20-10.20	**Panel**: **Future Trends in Computer Science and Computer Engineering Education**

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

Panelists: **Mario Covarrubias**, Politecnico di Milano, Italy
Eman El-Sheikh, University of West Florida, USA
Marcia Moraes, Colorado State University, USA

10.20-10.40   **BREAK**

ICR24-Session-10-IR **Computer Science/Computer Engineering Education + Posters 10.40-12.20, August 14, 2024 (In-Person/Remote)**

Session Chair: **Martin Q. Zhao**
Mercer University, USA

10.40-11.00   Using a Chinese Learning Application for Case Studies in OO Programming, Database Systems, and Software Engineering Courses
Martin Q. Zhao
Mercer University, USA

11.00-11.20   Insights into Online Video Learning: A Comprehensive Analysis of Student Learning Behaviors
Chien-Hsiang Liao
Fu Jen Catholic University, Taiwan

11.20-11.40   Video Games for STEM Education: Potential and Pitfalls
Neelam Soundarajan
Ohio State University, United States

11.40-12.00   Optimizing Educational Data Storage and Retrieval in Learning Management Systems Using Table Valued Parameters with Blazor Components
Agon Memeti, **Aqim Iljazi**, and Shkurte Luma-Osmani
University of Tetova, North Macedonia

12.00-12.20   ICT: Inclusive Competences for Teaching
Michele Della Ventura
Music Academy Studio Musica, Department of Music Technology, Italy

12.20-01.20   **LUNCH BREAK (ON YOUR OWN)**

ICR24-Session-11-R Smart Cities/Smart Energy + IoT
01.20-02.40, August 14, 2024 (Remote)

Session Chair:	**Razwan Mohmed Salah** University of Duhok, Iraq
01.20-01.40	Real-time Monitoring of Pavement Conditions through Smart Technologies **Carolina Oliveira**, Paulo Carvalho, and Solange Rito Lima Universidade do Minho, Portugal
01.40-02.00	Automated Tubular Ceramic Membrane Reactor Design for Laboratory-Scale Biofouling Analysis in Wastewater Treatment Processes **Lizeth Garcia**[1], Luis-Miguel Quishpe[1], Omar Sánhcez[2], Daniel Barzallo[2], Néstor Maya[2], Miguel Herrera-Robledo[1] [1]Universidad Regional Amazónica Ikiam, Ecuador [2]Instituto Superior Universitario Central Técnico, Ecuador
02.00-02.20	Privacy Preservation for The IoMT Using Federated Learning and Blockchain Technologies **Shamma Alalawi**, Meera Alalawi, Rawhi Alrae United Arab Emirates University, United Arab Emirates
02.20-02.40	Explainable Ensemble-Based Trust Management for IoT Systems **Muhammad Aaqib**[1], Aftab Ali[1], Liming Chen[2], and Omar Nibouche[1] [1]Ulster University, Northern Ireland, UK [2] Dalian University of Technology Dalian, China
02.40-03.00	**BREAK**

ICR24-Session-12-R Computer and Network Security
03.00-04.20, August 14, 2024 (In-Person/Remote)

Session Chair:	**Mais Nijim** Texas A&M Kingsville, USA
03.00-03.20	Insufficient Due Diligence: Knowledge-related Threats in Cloud Computing Frank Loots, **Harald Gjermundrød**, and Ioanna Dionysiou University of Nicosia, Cyprus
03.20-03.40	The Blind Spots of Two-Factor Authentication Tools **Joel Gonçalves de Oliveira** and Marcio Eduardo Kreutz UFRN, Dimap, PPGSC, Brazil

03.40-04.00	Insecurity Revealed: Decrypting Cookies to Show the Theft of Personal Data in University Students

Germán Rodríguez-Galán[1,2], Jenny Torres-Olmedo[1], and Luis Chica-Moncayo[2]

[1]Escuela Politécnica Nacional, Ecuador

[2]Universidad de las Fuerzas Armadas-ESPE, Ecuador

04.00-04.20	Utilizing Machine Learning for Intrusion Detection in Smart Grid Systems

Hisham Albataineh[1], Viswas Kanmuri[1], Waseem Alaqqad[2], and **Mais Nijim**[1]

[1] Texas A&M Kingsville, USA

[2] West Virginia Tech, USA

04.20-05.20	**Keynote Speech: How Artificial Intelligence is Shaping Medical Imaging Technology**

Professor Luís Pinto-Coelho
Polytechnic institute of Porto, Portugal