The Second International Conference on Advances in Computing Research (ACR'24) IE University, Madrid, Spain, June 3-5, 2024

Conference Program

Monday, June 3, 2024

07.30-08.00 Conference Registration (Conference Registration Desk)

08.00-08.15 WELCOME

Professor Solange Ghernaouti, University of Lausanne, Switzerland

Conference Chair

ACR24-Session-1-IR Cybersecurity Engineering

08.20-10.20, June 3, 2024 (In-person/Remote)

Session Chair: Enkhzol Dovdon

Eindhoven University of Technology, The Netherlands

08.20-08.40 Optimizing Energy Consumption for IoT Adaptive Security: A Mobility-

Based Solution

Asma Arab, Michaël Mahamat, Ghada Jaber, and Abdelmadjid

Bouabdallah

Université de Technologie de Compiègne, Heudiasyc (Heuristics and Diagnosis of Complex Systems) CS 60319, 60203 Compiègne cedex,

France

08.40-09.00 Machine Learning Based Analysis of Cyber-attacks Targeting Smart Grid

Infrastructure

Mais Nijim¹, Viswas Kanumuri¹, **Waseem Al Aqqad**², and Hisham

Albataineh³

Department of Electrical Engineering and Computer Science, Texas

A&M University-Kingsville, Kingsville, TX, USA

²Department of Electrical and Computer engineering, West Virginia Tech,

Beckley, WV, USA

³Department of Physics and Geosciences, Texas A&M University-

Kingsville, Kingsville, TX, USA

09.00-09.20 Cyber Attack Detection on IoT Using Machine Learning

Mohamed Haddadi¹, Eralda Caushaj², Ala Eddine Bouladour³, and

Adbeldjabar Nedjai Dhirar³

¹Université de M'hamed Bougara de Boumerdes, Boumerdès 35000,

Algérie.

²Oakland University, Rochester Hills, Michigan, USA

³Université de Ferhat Abbess Sétif1, Algérie

09.20-09.40 Open Platform Infrastructure for Industrial Control Systems Security Guillermo Francia, III and Eman El-Sheikh Center for Cybersecurity University of West Florida Pensacola, FL, USA Security Challenges and Solutions in Smart Cities 09.40-10.00 Faisal AlZyoud¹, Ruba Al-Falah², Monther Tarawneh¹, Omar Tarawneh³ ¹Computer Science Department, Isra University, Amman, Jordan ²Ministry of Local Administration, Amman, Jordan ³Software Engineering Department, Amman Arab University, Amman, Jordan 10.00-10.20 CloudSec: An Extensible Automated Reasoning Framework for Cloud **Security Policies** Joe Stubbs, Smruti Padhy, Richard Cardone, and Steve Black Texas Advanced Computing Center, University of Texas at Austin, Texas, **USA** 10.20-10.40 **BREAK** ACR24-Session-2-I **Data Analytics Engineering** 10.40-12.20, June 3, 2024 (In-Person) Session Chair: Guillermo Francia III University of West Florida Pensacola, FL, USA Irregular Frame Rate Synchronization of Multi-camera Videos for Data-10.40-11.00 driven Animal Behavior Detection Enkhzol Dovdon, Manu Agarwal, Yanja Dajsuren, and Jakob de Vlieg Mathematics & Computer Science Department, Eindhoven University of Technology, The Netherlands 11.00-11.20 Data Transfer Methods and Strategies: Unified Replication Model Using Trees. Alberto Arteta, Sai Sharan Karam, Vanga Ritesh Reddy, and Sontireddy Ranjith Reddy Troy University, Troy AL 36081, USA Effects of Parallel and Distributed Learning on CNN Performance for 11.20-11.40 Lung Disease Classification. Lara Visuña, Javier Garcia-Blas, and Jesus Carretero Computer Science and Engineering Department, University Carlos III of Madrid, Leganes, Spain

Public Policy Decision Making: Confirmatory Factor Analysis 11.40-12.00 Maryna Averkyna 1,2 and Oleksandr Skarbarchuk² ¹Estonian Business School, A. Lauteri, 3, Tallinn, Estonia, ²The National University of Ostroh Academy, Seminarska, 2, Ostroh, Ukraine 12.00-12.20 Classification of Eye Disorders Using Deep Learning and Machine Learning Models Manal El Harti¹, Saad Zaamoun², Said Jai Andaloussi¹, and Ouail ¹ Department of Mathematics and Computer Science, Faculty of Science Ain Chock, Hassan II University, Casablanca, Morocco. ² Faculty of Juridical, Economic and Social Sciences Ain-Chock, Hassan II University, Casa-blanca, Morocco. 12.20-01.20 **LUNCH BREAK (ON YOUR OWN)** ACR24-Session-3-R **Data Analytics Engineering** 01.20-03.00, June 3, 2024, (Remote) **Session Chair:** Lemia Louail Université de Lorraine, France 01.20-01.40 TNEST: Training Sparse Neural Network for FPGA Based Edge **Application** Rammi Das¹, Rupesh Raj Karn², Jukka Heikkonen³, and Rajeev Kanth⁴ ¹Nepal College of Information Technology, Pokhara University, Nepal ²Center for Cyber Security, New York University, UAE ³Department of Computing, University of Turku, Finland ⁴Department of Information Technology, Savonia University of Applied Sciences, Finland 01.40-02.00 Improving the efficiency of Multimodal approach for Chest X-ray Jiblal Upadhya¹, Jorge Vargas², Khem Poudel³, and **Jaishree** Ranganathan³ ¹ Computational and Data Science, Middle Tennessee State University, Murfreesboro, TN, 37132, USA,

Murfreesboro, TN, 37132, USA

University, Murfreesboro, TN, 37132, USA,

² Department of Engineering Technology, Middle Tennessee State

³ Department of Computer Science, Middle Tennessee State University,

02.00-02.20 Improving Weeds Detection in Pastures Using Illumination Invariance Techniques

Ali Hassan Alyatimi^{1,2}, Thair Al-Dala'in³, Vera Chung¹, **Ali Anaissi**¹, and Edmund J. Sadgrove⁴

¹ School of Computer Science, The University of Sydney

² Computer Tech, Jazan College of Technology, Vocational Training Corporation (TVTC), Saudi Arabia

³ Western Sydney University, Sydney City Campus, Australia.

⁴ School of Science & Technology, University of New England, Armidale, NSW 2351, Australia

02.20-02.40

Evaluating Study Between Vision Transformers and Pre-trained CNN Learning Algorithms to Classify Breast Cancer Histopatho-logical Images **Maali Altulayhi** and Ashwaq Alhrgan

College of Computing and Informatics, Saudi Electronic University, Saudi Arabia

02.40-03.00

Wrist Crack Classification Using Deep Learning and X-Ray Imaging **Biswaranjan Senapati**¹, Awad Bin Naeem², Muhammad Imran Ghafoor³, Vivek Gulaxi⁴, Friban Almeida⁵, Manish Raj Anand⁶, Saroopya Gollapudi⁷, and Chandra Jaiswal⁸

¹ Parker Hannifin Corp, Chicago, USA

² National College of Business Administration & Economics, Pakistan

³ Pakistan Television Corporation, Lahore, Pakistan

⁴ Publix Corporation, USA

⁵ Computer Science Department Inc, USA

⁶ Medline Pharmaceuticals, USA

⁷ Deloitte Consulting LLP, USA

⁸ Hanes Brands INC, USA

03.00-03.20 **BREAK**

ACR24-Session-4-IR Networking and Communication

03.20-04.20, June 3, 2024 (Remote/In-Person)

Session Chair: Eman El-Sheikh

University of West Florida Pensacola, FL, USA

User controlled routing exploiting PCEPS and Inter-domain Label

Switched Paths

Leonardo Boldrini¹, Matteo Bachiddu², Ralph Koning³, and Paola Grosso¹

¹MNS group, University of Amsterdam, Amsterdam, The Netherlands

²NETGroup, Politecnico di Torino, Torino, Italy

³SIDN Labs, Arnhem, The Netherlands

03.40-04.00 Performance Evaluation of Multi-Hop Multi-Branch AF Relaying Cooperative Diversity Network Arwa Sh. Agel, and Mamoun F. Al-Mistarihi Jordan University of Science and Technology, Irbid, Jordan 04.00-04.20 Study of Sober and Efficient LoRaWAN Networks Lemia Louail and Jean-Philippe Georges Université de Lorraine, CNRS, CRAN, F-54000 Nancy, France 04.20-05.20 **Keynote Speech: Data-driven Decision Support and Sector-based Optimization within Complex Reachback Process Professor Stefan Wolfgang Pickl** DKKV, COMTESSA, Munich, Germany 07.30-10.00 CONFERENCE DINNER

Tuesday, June 4, 2024

ACR24-Session-5-IR Computational Intelligence

08.00-10.20, June 4, 2024 (In-person/Remote)

Session Chair: Maryna Averkyna Estonian Business School, Estonia 08.00-08.20 Innovating Project Management: AI Applications for Success Prediction and Resource Optimization Monther Tarawneh¹, Huda AbdAlwahed², and Faisal AlZyoud¹ ¹ Computer Science Department, Isra University, Amman, Jordan ²Software Engineering Department, Isra University, Amman, Jordan 08.20-08.40 Integrating Lean Healthcare and Machine Learning for Cancer Risk Prediction Mohammad Shahin, Mazdak Maghanaki, F. Frank Chen, and Ali Hosseinzadeh The University of Texas at San Antonio, San Antonio TX 78249, USA 08.40-09.00 Fast Artificial Intelligence Detecting Climate Change Effects in Imaging Birgitta Dresp-Langley¹ and John M. Wandeto² ¹ CNRS UMR 7357 Strasbourg University, 67200 Strasbourg, FRANCE

² Dedan Kimathi University of Technology, Nyeri, Kenya

09.00-09.20	Optimizing Feature Selection for Binary Classification with Noisy Labels: A Genetic Algorithm Approach Vandad Imani ¹ , Elaheh Moradi ¹ , Carlos Sevilla-Salcedo ² , Vittorio Fortino ³ , and Jussi Tohka ¹ ¹ A. I. Virtanen Institute for Molecular Sciences, University of Eastern Finland, Finland ² Department of Computer Science, Aalto University, Espoo, Finland ³ Institute of Biomedicine, University of Eastern Finland, Finland
09.20-09.40	A web Application to Determine the Quality of Water Through the Identification of Macroinvertebrates María-Isabel Cañar ¹ , Marcelo Flores ^{1,2} , and Angélica Zea ¹ ¹ Salesian Polytechnic University, Calle Vieja 12-30. Cuenca, Ecuador ² Polytechnic University of Valencia. Camino de Vera s/n 46022 Valencia, Spain
09.40-10.00	Improving Early Diagnosis: The Intersection of Lean Healthcare and Computer Vision in Cancer Detection Mazdak Maghanaki, Mohammad Shahin, F. Frank Chen, and Ali Hosseinzadeh The University of Texas at San Antonio, San Antonio, TX 78249, USA
10.00-10.20	Analysis of Blood Smear Microscopic Images Using ML: DL Hadia Mansouri ¹ and Faouzi Benzarti ² ¹ University of Tunis El Manar, National School of Engineers of Tunis, SITI Laboratory, University Campus Farhat Hached El Manar, Tunis ² University of Tunis, High National School of Engineers of Tunis, SITI Laboratory, National School of Engineers of Tunis
10.20-10.40	BREAK
10.40-12.00	Panel: Current and Future Trends in Computational Intelligence
	Moderator: Robert Polding, IE University, Spain
	Panelists: Luis Coelho, Polytechnic Institute of Porto, Portugal Birgitta Dresp-Langley, CNRS UMR 7357 Strasbourg University, France Monther Tarawneh, Isra University, Jordan
12.00-12.20	FREE SLOT
12.20-01.20	LUNCH BREAK (ON YOUR OWN)

01.20-02.40 Keynote Speech: Secure Key Exchange Withstanding Quantum

Attacks

Professor María Isabel González Vasco Universidad Carlos III de Madrid, Spain

02.40-03.00 FREE SLOT

03.00-03.20 BREAK

ACR24-Session-6-IR Cybersecurity Engineering

03.20-05.00, June 4, 2024 (In-Person/Remote)

Session Chair: Alberto Arteta

Troy University, USA

03.20-03.40 A New Security Mechanism for IoT Devices: Electroencephalogram

(EEG) Signals

Ahmet Furkan Aydogan¹, **Cihan Varol**¹, Aysenur Vanli¹, and Hacer

Varol²

¹Sam Houston State University, Huntsville TX 77384, USA

²Stephen F. Austin State University, Nacogdoches TX 75962, USA

03.40-04.00 Towards Hybrid NIDS: Combining Rule-Based SIEM with AI-Based

Intrusion Detectors

Federica Uccello¹, **Marek Pawlicki**², Salvatore D'Antonio¹, Rafal Kozik²,

and Michal Choras'2

¹University of Naples 'Parthenope' Centro Direzionale, Isola C4, 80133

Napoli, Italy

Bydgoszcz University of Science and Technology, PBS, Bydgoszcz,

Poland

04.00-04.20 Cyber Edge: Mitigating Cyberattacks in Edge Computing using Intrusion

Detection System

Waseem AlAqqad¹, Mais Nijim², Hisham Albataineh³

¹Department of Electrical and Computer Engineering, West Virginia Tech,

Beckley, WV, USA

²Department of Electrical Engineering and Computer Science, Texas

A&M University-Kingsville, Kingsville, TX, USA

³Department of Physics and Geosciences, Texas A&M University-

Kingsville, Kingsville, TX, USA

04.20-04.40 Using Multivariate Heuristic Analysis for Detecting Attacks in Website

Log Files: A Formulaic Approach

Peter Smith, John Robson, and Nick Dalton

Northumbria University, Newcastle, United Kingdom

04.40-05.00 An Assessment of the Cyber Security Challenges and Issues Associated

with Cyber-Physical Power Systems

Abubakar Bello¹, Farnaz Farid¹ and Fahima Hossain²

¹Western Sydney University, Australia ²Hamdard University, Bangladesh

Wednesday, June 5, 2024

Session Chair: Mohamed Haddadi

Université de M'hamed BOUGARA de Boumerdes, Algeria

ACR24-Session-7-R Data Analytics Engineering

08.00-09.20, June 5, 2024 (Remote)

08.00-08.20 Increasing the Accuracy of a Deep Learning Model for Traffic Accident

Severity Prediction by Adding a Temporal Category

Luis Pérez-Sala, Manuel Curado, Leandro Tortosa, and Jose F. Vicent Department of Computer Science and Artificial Intelligence, University of

Alicante, Alicante, Spain

08.20-08.40 2ARTs: a Platform for Exercise Prescriptions in Cardiac Recovery

Patients

Andreia Pereira¹, Ricardo Martinho², Rui Pinto³, Rui Rijo², and Carlos

Grilo

¹ ESTG, Polytechnic of Leiria, Portugal

² INESCC-DL, ESTG, Polytechnic of Leiria, Portugal

³ ciTechCare, ESSLei, Polytechnic of Leiria, Portugal

⁴ CIIC, ESTG, Polytechnic of Leiria, Portugal

08.40-09.00 Understanding Consumers Attitudes Towards Sustainability

Ali Anaissi¹, Maria P. Mandiola¹, Sabreena Zoha Amin², and Widad

Alyassine¹

¹ School of Computer Science, The University of Sydney, Australia

² School of Business, Western Sydney University

09.00-09.20 Optimized Vehicle Repair Cost by Means of Smart Repair Distribution Model Franck van der Sluis^{1,3}, Cristian Rodriguez Rivero², and Joris Hooi³ ¹ University of Amsterdam, Science Park, Amsterdam 1098 XH, Netherlands ² Cardiff Metropolitan University, Cardiff CF52YB, Wales, UK ³ Openclaims, Amsteldijk 10, 1074 HP Amsterdam, Netherlands 09.20-10.20 **Keynote Speech: A Visit to Pre-Quantum, Quantum, and Post-Quantum Cryptography** Dr. Luis Hernández Encinas The Spanish Nacional Research Council (CSIC), Madrid, Spain 10.20-10.40 **BREAK** ACR24-Session-8-IR **Posters** 10.40-12.20, June 5, 2024 (In-Person/Remote) **Session Chair:** Lara Visuña University Carlos III of Madrid, Spain 10.40-11.00 Towards a Scalable Spiking Neural Network Rasha Karakchi and Jacob Frierson University of South Carolina, Columbia SC 29208, USA 11.00-11.20 Exploration of TPUs for AI Applications Diego Sanmartín Carrión, Vera Prohaska, and Oscar Diez IE University, Madrid 28029, Spain Driving Through Crisis: A Comparative Analysis of Road Accidents 11.20-11.40 Before, During, and After the Pandemic Balakiran Neelam, Chandra Ponnathota, Manikanta Tumu, and Samah Sacred Heart University, Fairfield, Connecticut, USA 11.40-12.00 The Controversies and Challenges of Developing Beneficial Artificial Intelligence Louis Golding and Robert Polding Department of Data and Business Analytics, IE University, School of Science and Technology, Madrid, Spain

12.00-12.20 An Approach to Mitigate CNN Complexity on Domain-Specific Architectures Rasha Karakchi and Noah Robertson University of South Carolina, Columbia SC 29208, USA 12.20-01.20 **LUNCH BREAK (ON YOUR OWN)** 01.20-02.20 Panel: Advances in Data Analytics Engineering *Moderator*: Federico Castanedo, IE University, Spain Panelists: Alberto Arteta, Troy University, USA Maryna Averkyna, Estonian Business School, Estonia Enkhzol Dovdon, Eindhoven University of Technology, The Netherlands 02.20-02.40 FREE SLOT 02.40-03.00 **BREAK** ACR24-Session-9-IR Data Analytics Engineering + Mobile and Cloud Computing + **Robotics and Automation** 03.00-05.00, June 5, 2024 (In-Person/Remote) **Session Chair:** Joe Stubbs University of Texas at Austin, USA 03.00-03.20 A Quadcopter Development for Security Purposes Yusra Obeidat and Rana Daoud Electronics Engineering Department Yarmouk University, Irbid, Jordan 03.20-03.40 An Analytical Study of Traffic Accidents in Connecticut, USA Using Python Prudhvinath Reddy Sureddy, Saifuddin Mohammed, Venkata Sai Veerendranath Magathala, Yamuna Koppala and Samah Senbel Sacred Heart University, Fairfield, Connecticut, USA 03.40-04.00 Enriching Ontology with Named Entity Recognition (NER) Integration Nabila Khouya, Asmaâ Retbi, and Samir Bennani Rime Team, Mohammadia School of Engineers (EMI), Mohammed V University in Rabat, Morocco

04.00-04.20 Overview of Infrastructure as Code (IaC) with Performance and Availability Assessment on Google Cloud Platform Hongyu Wang, Brian Kishiyama, David Lopez, and Jeong Yang Department of Computational, Engineering, and Mathematical Sciences, Texas A&M University-San Antonio, San Antonio, TX, USA 04.20-04.40 Determination of Pareto-Optimal Solutions to the Problem of Multicriteria Selection Sergiy Shevchenko National Technical University, Kharkiv Polytechnic Institute, Ukraine 04.40-05.00 Credit Card Batch Processing in Banking System Samir Poudel*, Movinuddin1, Sanjana Gutta1, Revanth Kumar Kommu1, Jiblal Upadhya², Md Nahid Hasan², and Khem Poudel¹ ¹ Department of Computer Science, Middle Tennessee State University, Murfreesboro, TN, 37132, USA, ² Computational and Data Science, Middle Tennessee State University, Murfreesboro, TN, 37132, USA