Editorial

Alessia Amelio*

Department of Computer Engineering, Modeling,
Electronics and Systems (DIMES),
University of Calabria,
Via Pietro Bucci 87036 Rende (CS), Italy
Email: aamelio@dimes.unical.it
*Corresponding author

Darko Brodić

Deceased; formerly of: Technical Faculty in Bor,
University of Belgrade,
Vojske Jugoslavije 12, 19210 Bor, Serbia
Email: profdbrodic@gmail.com
Email: dbrodic@tfbor.bg.ac.rs

Carlos Alexandre Barros de Mello

Centro de Informática,
Universidade Federal de Pernambuco,
Av. Jornalista Aníbal Fernandes, s/n, Cidade Universitária,
50.740-560, Recife, PE, Brazil
Email: cabm@cin.ufpe.br

Nadeem Ch. Ahmad

Department of Computer Science,
University of Sialkot,
1-Km Main Daska Road, Sialkot, Pakistan
Email: nadeem.ahmad@uskt.edu.pk

Biographical notes: Alessia Amelio received her BSc and MSc Magna Cum Laude in Computer Science Engineering from University of Calabria in 2005 and 2009, and PhD in Computer Science Engineering and Systems from the Faculty of Engineering, University of Calabria in 2013. From 2011 to 2016, she was a Research Fellow at the National Research Council of Italy. From 2016, she is a Contract Professor of Computer Science at the Department of Computer Science Engineering, Modeling, Electronics and Systems, University of Calabria, Italy. Her current research interests include pattern recognition and machine learning. She has co-authored more than 30 journal papers, and more than 60 conference papers, book chapters and magazine papers.

Darko Brodić received his PhD in Electrical Engineering in 2011 (University of Banja Luka, Bosna), MEE in Electrical Engineering in 1990 (University of Sarajevo, Bosna), specialisation in Electrical Engineering in 1988 (University

of Ottawa, Canada), and BsC in Electrical Engineering in 1987 (University of Sarajevo, Bosna). He was with the University of Belgrade, Technical Faculty in Bor. His research interests included were artificial intelligence, language recognition, script recognition, document image processing, CAPTCHA, user-centric measurement of magnetic field. He was the author and co-author of over 80 journals and conference as well as many books and textbook.

Carlos Alexandre Barros de Mello received his PhD in Computer Science in 2002, MSc in Computer Science in 1997, and BsC in Electrical Engineering in 1994 (Universidade Federal de Pernambuco, Brazil). He is currently an Associate Professor at Universidade Federal de Pernambuco. He worked in research projects in Spain, the USA, and Australia, just as commercial companies as Motorola and Stefanini Document Solutions. He is an IEEE senior member and member of the IEEE SMC Technical Committee in Human Perception in Multimedia Computing. He has published several peer-reviewed journal papers, conference papers, books and book chapters. His research interests are image processing, computer vision, visual perception, document engineering and speech processing.

Nadeem Ch. Ahmad has completed his dual PhD in Human Computer Interaction from University of Potsdam, Germany and Politecnico di Torino, Italy in 2014. He works as the Pro-Vice where he is involved in corporate planning. In the capacity of Chairman, he served two years in the Department of Computer Science at Superior University, Pakistan. Before joining The Superior University, he worked as the Head of Computer Science and IT Department in The University of Lahore for three years. His research work mainly focuses on data analytics, people centred interfaces, usability barriers, localisation, accessibility, and visual design. He has published 21 papers in reputed journals and international conferences.

It is our pleasure to introduce to you this special issue of the International Journal of Computational Intelligence Studies. Once we have decided to submit to this call, we have chosen to be bold and have something about two particularly challenging subjects: Intelligent Systems and Cyber Security. This is how this special issue titled 'Intelligent systems for cyber security: current trends, applications and new challenges' was born. The papers collected in this issue bring some insights on some important aspects and approaches to cyber security issues. Following, we briefly summarise the accepted papers:

- 'Intrusion detection using data mining'

  In this paper, the authors present a framework for intrusion detection based on three different techniques (quad split, correlation-based quad split and K-means clustering). The proposed framework was tried against the University of New South Wales dataset which has ten different classes as normal transaction data, worms, DoS, etc. achieving better results than C4.5 method.

- 'An integrated approach for multimodal biometric recognition system using Pearson type-II (beta) distribution'

  The 2D discrete cosine transform is used for feature extraction in a system for personnel identity authentication based on multimodal biometric recognition. The biometric traits are face, fingerprint and palm vein with feature vector modelled with

Pearson type-II distribution and the model parameters are estimated using the EM algorithm. CASIA biometric database was used to test the proposal.

- 'IbPaKdE: identity-based pairing free authenticated key and data exchange protocol for wireless sensor networks'

  Due to the vulnerabilities in key distribution in wireless sensor networks, this paper proposes the based pairing free authenticated key and data exchange protocol (IbPaKdE) which also deals with problems as computational complexity, energy efficiency, low communication overhead, and low memory overhead. The method is tried against HISKDE with better performance.

- 'DCT statistics and pixel correlation-based blind image steganalysis for identification of covert communication'

  Image steganalysis is the focus of this paper which introduces a method based on features extracted from DCT statistics and pixel correlation. The experiments use datasets as BSDS300 and are conducted against several methods in a wide variety of situations with very satisfactory results.

- 'Adaptive QoS constraint-based service differentiated routing in wireless sensor network'

  This paper proposes the AQSDR protocol for data transmission when there is limited resources availability as energy in wireless network systems. It provides a solution with low energy consumption, delay, control overhead, high throughput, and other features. The method has a time complexity $O(n)$. It is evaluated considering delay, average residual energy, throughput and packet delivery ratio in scenarios simulated by NS2 simulator.

This issue is also a tribute to the vibrant and restless mind of our dear friend, Professor Darko Brodić, who has passed away in 2018. In his memory, the decision to continue this special issue was taken and here it is. We really hope you appreciate the efforts of all the researchers involved in this issue.