Guest editorial

Capsule networks and autonomous systems

Capsule Networks is an emerging building-block of deep learning discipline that trains the network to inversely render the processes of autonomous systems and predict various in-built features in order to achieve a state-of-the-art performance with simple data sets. This emerging deep learning-based autonomous system provides innovative dynamic routing mechanism between capsules to solve various problems defined on the smart autonomous systems. Capsule networks are closely related to the convolutional neural networks with a group of neurons that tends to represent various system entities from a different viewpoint with comparatively less training data.

The first paper “Intensive packet domain mining engine (IPDME): a high-speed pre-processor for network intrusion detection” accomplishes the high bandwidth, less latency and less energy consumption by using GPDU pre-processors. The second paper “Indoor and outdoor image classification: a mixture of brightness, straight line, Euclidean shapes and recursive shapes based approach” compared the different feature combinations to overcome the problem of varying number of feature vectors, of the feature-set, corresponding to the number of segments in the scene. The third paper “Makespan of routing and security in cross centric intrusion detection system (CCIDS) over black hole attacks and rushing attacks in MANET,” the authors proposed an enhancement of cross centric intrusion detection system named as PIHNSPRA Routing Algorithm (PIHNSPRA) for secure routing in mobile ad hoc networks. And the fourth paper “Ship detection and recognition for offshore and inshore applications: a survey” provides the detailed study of ship detection and recognition systems based on the various classifier techniques including the future investigation process for better image enhancement. The fifth paper focuses on “Semantic tracking and recommendation using fourfold similarity measure from large scale data using Hadoop distributed framework in cloud,” proposing a fourfold semantic similarity in order to obtain greater accuracy. The final paper is “News shocks modeling on monetary policies using dynamic stochastic general equilibrium (DSGE) model: case analysis which aims to investigate the effects of news shocks on monetary policies using the dynamic stochastic general equilibrium (DSGE) model.

This special issue focused on the selection of high-quality papers in the fields related to capsule networks and autonomous systems. The six selected papers addressed the various issues related to the deep learning mechanism in capsule networks and their deployment helps to solve the emerging issues in autonomous systems.

S. Smys
RVS Group of Institutions, Coimbatore, India

Joy Iong-Zong Chen
Department of Electrical Engineering,
Dayeh University, Changhua, Taiwan

Shahed Mohammadi
Ayandegan University, Tonekabon, Iran, and
Álvaro Rocha
AISTI, Rio Tinto, Portugal and
University of Coimbra, Coimbra, Portugal
About the Guest Editors

Dr S. Smys received his ME and PhD Degrees all in Wireless Communication and Networking from Anna University and Karunya University, India. His main area of research activity is localization and routing architecture in wireless networks. He serves as Associate Editor of *Computers and Electrical Engineering (C&EE) Journal*, Elsevier and Guest Editor of *MONET Journal*, Springer. He is served as a reviewer for IET, Springer, Inderscience and Elsevier journals. He has published many research articles in refereed journals and IEEE conferences. He has been the General chair, Session Chair, TPC Chair and Panelist in several conferences. He is member of IEEE and senior member of IACSIT wireless research group. He has been serving as Organizing Chair and Program Chair of several International conferences, and in the Program Committees of several international conferences. Currently, he is working as Professor in the Department of Computer Science and Engineering at RVS Technical Campus, Coimbatore, India. Dr S. Smys is the corresponding editor and can be contacted at: smys375@gmail.com

Dr Joy Iong-Zong Chen is currently Full Professor in the Department of Electrical Engineering Dayeh University at Changhua Taiwan. Prior to joining the Dayeh University, he worked at the Control Data Company (Taiwan) as Technical Manager since September 1985 to September 1996. His research interests include wireless communications, spread spectrum technical, OFDM systems and wireless sensor networks. He has published a large number of SCI Journal papers in the issues addressed physical layer for wireless communication systems. Moreover, he also majors in developing some applications of the IOT (Internet of Thing) techniques and Dr Joy I.-Z. Chen owned some patents authorized by the Taiwan Intellectual Property Office (TIPO).

Dr Shahed Mohammadi is holding Associate Professor in the Department of Computer Science and Systems Engineering and Research Director of Ayandegan University main campus, Mazandaran, Iran. He received his PhD in Artificial Intelligent on the area of Image Processing from Computer Science and Systems Engineering Department of Andhra University, Visakhapatnam, India. He is editorial board member of *Experimental & Theoretical Artificial Intelligence Journal*, Taylor and Francis publication and *Journal of The Institution of Engineers (India): Series B Springer publication*. His main research area is biometric systems but he is also working at AI Optimisation, IoT Systems and Could Computing fields.

Dr Álvaro Rocha holds Habilitation in Information Science, PhD in Information Systems and Technologies, MSc in Information Management and BCs in Computer Science. He is Professor of Information Systems and Software Engineering at the University of Coimbra, Researcher at CISUC (Centre for Informatics and Systems of the University of Coimbra) and Collaborator Researcher at LIACC (Laboratory of Artificial Intelligence and Computer Science) and at CINTESIS (Center for Research in Health Technologies and Information Systems). His main research interests are information systems planning and management, maturity models, information systems quality, online service quality, intelligent information systems, software engineering, e-government, e-health, and information technology in education.