Emerging Topics of
Computation, Digitalization and Informatics in Advancing Society

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— Edited by —

P.K. Paul, J.L. Dey, R. Saavedra,

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Digitalization and Digital Society Powered by Emerging ICT and Computing

An Editorial

Digital society is an interdisciplinary aspects, facet and concept in progressive society, and this is a result of adoption and integration of Information and communication technologies, computer science, information science and business science & the humanities at home, work, education and recreation.

Digital society is connected with the telecommunications and various digital solutions and also depends on digital economy which is a concept of economic development with proper support from digital tools & technologies and depends on information knowledge & digital products. In support of Building Digital Society all the Information Technology Components are useful and required and out of these important are Networking Technology, Database Technology, Web Technology, Multimedia Technology, Software Technology, and so on. As far as Computational Sciences are concerned some of the latest technologies and concepts are growing and alarming such as Artificial Intelligence, Machine Learning and Deep Learning including Computational Intelligence etc. Computational Intelligence (CI) is associated with the computing paradigms including ambient intelligence, artificial life, cultural learning, artificial endocrine networks, social reasoning, and artificial hormone networks. There are other latest technologies which also impacting modern technology field via-a-vis modern society such as swarm intelligence (SI), artificial neural networks (ANN), evolutionary computation (EC), artificial immune systems (AIS), and fuzzy systems (FS). Computational Intelligence (CI) is rapidly emerging and promising a great deal of attention. Apart from these, another latest concept called Knowledge mining is also very popular and emerging within artificial intelligence (AI) which offer an intelligent services and serve vast amounts of information. Knowledge representation, which is also part of Knowledge Mining and there AI agent play a leading role, in this regard AI agents thinking and how thinking contributes to intelligent behavior of agents considered as vital. There are tremendous role regarding the implications of IT and Computing in business sector and as far as Computational Intelligence

segment is concerned it has tremendous applications in the areas of business functions, including finance, economics, production, operations, marketing, and management. In online marketing, internet marketing, e business etc. Computational Intelligence is rising its popularity day by day and environment and ecology is one of the potential and promising field of study where there are huge applications to look into. Environmental management, environmental monitoring, disaster management, wildlife management, forest management become an important field of study where Computational Intelligence is rising and applicable.

Today agricultural sector and other areas become an important area field of study where Computational Intelligence become worthy and rising due to the implications of smart agriculture, digital agriculture, precision agriculture etc. Computational Intelligence brings modern agricultural robots, agricultural harvesting etc. Computational Intelligence including other allied technologies such as Cloud Computing, Big Data, Internet of Things, Metaverse Technologies, Blockchain Technologies are impacting and significance and playing a leading role in higher education, and other educational segments specially in educational management, educational and learning analytics, society, business and healthcare sector. Today organizations and institutions become digital and purely ICT based. There are many areas where Advanced ICT become important and growing and as a result advanced smarter city, town concept become arrived. The advancement of the emerging technologies led the digital society and this book explores such aspects. The Digital Society become an integrated society with applications of various ICT tools and technologies, and as a result it brings many digital aspects and concepts such as Digital Education, Digital Business, Digital Marketing, Digital Government, and so on.Digital Society, and its concept is rising, the growth of Information Science and Technology helps in building Digital Infrastructure which are impacting and highly required in Network Infrastructure, Web Infrastructure, Database Infrastructure, Content Infrastructure, etc. The advancement of newer and emerging technologies viz. Cloud Computing, Big Data Analytics, Human Computer Interaction, User Experience Designing, Intelligent Systems etc. therefore leading Digital Society and establishments rapidly.

— *Editors*

P.K. Paul, J.L. Dey, R. Saavedra, S.K. Sharma and
Edward Roy K

About the Editors

Dr. P.K. Paul, *D.Sc. (IST)- UA Mexico, PhD (IST), PDFC (EIS), FAU (Mexico), FBSS, FIARA*
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Dr. P.K. Paul holds prestigious and unique D.Sc. in Information Science and Technology (IST) degree from Azteca University, Mexico under Dr. Agustin Yoh International Postdoctoral Fellowship (DAYIPF) Program. He also holds PhD in IST from IIEST Shibpur, Post-Doctoral Fellow Certificate (PDFC) Program in Environmental Informatics. He has to his credit unique and research based degrees viz. M.Tech. (by Research), MS (by Research) in addition to M.Sc. (Double). He is currently working as Asst. Professor (IST) & Executive Director (MCIS Program), and Head/Coordinator at Dept. of Computer & Information Sciences, and additionally Information Scientist (Offg.) Position at Raiganj University, West Bengal, India.

Dr Paul is actively engaged in the research and academic activities in the field of IST and Engineering Sciences related to Information Processing and Management. He is actively associated with Raiganj University, Raiganj, West Bengal in teaching and learning activities. He is also CEO and Vice President of IST Foundation. Virtually he is among the few Indian Information Science professionals who hold Post Graduate Qualification in all the dimensions of Information Sciences, ranging from Computer Science, Management Science, and Information Technology. He is specialized in emerging IT & Computing subjects that have social and business touch. He designed country's first MBA-Information Management Program for VMS University, Sikkim. He is also a mastermind for designing India's first interdisciplinary Masters (MSc) Program on Computing (MSc-Computer & Information Science) based on principles of interaction of information-technology with people. The first of its kind program has already been started in the Government University, RGU, India. He is credited with research policy paper on Cloud Computing Applications in Information Science, Systems, Information Centre, Green

Computing or Green IT in Information Field/I-Schools Aspects/ Usability Engineering in Information Science and Services/HCI in Information Uses/ Information Science Educational Aspects/ [IST]/Information Scientist/Geo-Information Science, Quantum Information Science and so on.

Dr Paul holds 250+ Authored Indexed, Refereed Papers, Articles, and 100+ Book Chapters to his credit and about 30 National and International Authored and Edited Books. He is Chief Editor of IJASE and IJISC, New Delhi, IRAJMSS of IRA Academy Research, India. As the Chief Editor of IJAEML of Srinivas Publications, Mangalore, India, he is dedicated to research promotions. He is also involved as Editorial Board Member and Reviewer of more than 100 National and International Journals in diverse fields ranging from Computer Science, Informatics, Management, Engineering Science to Education, Social Science, Health Science, Pharmacy, Journal of Organizational and End User Computing, International Journal of E-Adoption, International Journal of Web Services Research, International Journal of E-Health and Medical Communications, International Journal of Healthcare Information Systems and Informatics, JECO, IJIRR, IJHCITP, IJOSSP, IJMDEM, IJTHI, IJDET, IJITPM, IJISSCM, IJISSS, IJBDCN, IJWP published from United States, Dubai, India, Nigeria, South Africa and so on. He has conducted about 250+ international conferences spread over 50+ countries and events as a committee member, chair, TPC, reviewer, etc. He holds the credit of organizing 12+ Conferences (with Indian and International Institutions) just in 2021 as a Director, Program Chair, Co-Chair, General Secretary, Convener etc. and among them the important ones are ICRICC-2021, ISFARAC-2021, ICONAIIS-2021, IMCISMRSS-21, ICARI-2021, ICONECBIT-2021, ICEAS-2021. He also served in various events as visiting, invited and guest speaker, a few important ones are ICRDSTHM-17, iCon-MESSSH'19, ICCISD-2023, AMRIT-2023, NSETRAR-17, ICIRHT-17, etc.

Dr Paul has delivered several invited talks in leading and reputed academic and industrial establishments like SRM University, Sikkim University, VIT University, Srinivas University, Mangalore University, Assam Central University, Chaitanya Deemed to be University, TCG Digital, and CloudNet India. He has received many Awards such as Best Researcher Award in Information Sciences (from IARA, Trichy), David Clark Blair Young Scientist Award in Computer & Information Science (from BSS, India), International Young Scientist Award (from ISROSET) for the contribution in Health Informatics, Citation Award (from SSCET/Sri Sai University), International Social Science and Digital Society Think Tank Award-2020, International Outstanding Research & Scientific Events Organizer-2021, Dr. Agustin Yoh International Postdoctoral Fellow Award and Fellow of Azteca University (FAU) in 2021, etc.

Dr. Jayati Lahiri Dey *MCA, Ph.D. (CIS)*

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Dr. Jayati Lahiri Dey is currently working as an Assistant Professor of Computer and Information Science, Raiganj University, Raiganj, India. She has 18 years of Hands-on teaching experience at graduation and post-graduation level education facility. She is familiar with working at a College and University department. She has the ability to handle syllabus in undergraduate and post graduate curriculum and to teach, inspire and develop young people .She obtained her B.Sc. (Physics) from Calcutta University, MCA from Visvesvaraya Technological University, Karnataka, India and her PhD in Computer and Information Science from Raiganj University, India. Her areas of Interest are include:

- ❖ Cloud Computing
- ❖ Software Applications
- ❖ Big Data and Fog Computing, etc.

She got 2nd State Rank during MCA. She had wide Industry Experience in E-Governance Project of Govt. of West Bengal. She had worked as Senior Software Developer in National Informatics Centre (NIC) in Collaboration with Price Waterhouse Coppers (PWC). Dr. J. L. Dey is guiding three students continuing their PhD degree and has published a good number of articles in international and national journals of repute. Her areas of interest are Cloud Computing, E Learning, Big Data, Fog Computing and so on. She has worked in the academic events such as Seminars and Conferences in different capacity.

Dr. Ricardo Saavedra Hidalgo, *B.Sc. M.Ed. M.Sc. PhD, FISROSET*

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(Prof.) Dr. Ricardo Saavedra Hidalgo is CNC, B.Sc. M.Ed. M.Sc. PhD, FISROSET holding the position of Director & Chair International Programs at Azteca University (Universidad Azteca), Mexico. He is also an International Speaker, Master Coach Trainer, Business Consultant and Entrepreneur. Director and Legal representative of "Azteca Inter-University Programs" and "Universidad Azteca International Network System",

Founder and General Director of "Pro-Innovation Solutions SC", a Consulting firm that provides service to transnational corporations, universities, governments and organizations in different countries and regions, North America, European Union, Asia, Middle East, Africa, and Latin America.

❖ General Director of the International Council of Coaching Accreditation, i.e. ICCA.

❖ Master Coach Trainer and President for Mexico for the International Association of Coaching Institutes (ICI), Germany

❖ ISO 9001:2015 and ISO 29990: 2010 Lead Auditor from UK and Germany

❖ Authorized Representative and International Advisory Board Member for Accreditation Service for International Colleges, ASIC

He has more than 25 years of experience as Business Consultant, with several executive positions worldwide. He has implemented successful operation in national/international companies and organizations.

He has implemented educational technology, successful administrative design, application of acceleration models and innovation, setting out diagnosis and design of organizational structure.

He has also created maps of leadership and integration of effective corporate team work.

Dr. Ricardo Saavedra Hidalgo played a leading role in expansión of Azteca University's International Operations and extensión of the network. Under his leading term many activities have been started viz. BITHM College of

Professionals, Chittagong, Bangladesh; he American Christian Liberal Arts University & Medical School in Congo, Republic of the Congo; MiMBER Institute of Management Studies, Yangon, Republic of the Union of Myanmar; Kingston Institute of Management & Technology (KIMT), Dhaka 1213, Bangladesh; Global education trust PVT LTD (Gets Campus), Addalaichenai-05 Sri Lanka; University of Entrepreneurship and Technology (UET), Oyo State, Nigeria; Confederation of International Accreditation Commission (CIAC); Gujarat, India; Vocational Training Institute, Mauritius Elite International College, Selangor, Malaysia.

He also maintain liaison for Azteca University, Mexico for the European Programs at its Austria and Germany Campuses strongly. Apart from this he is also playing a leading part in building of African Campuses and affiliation of Azteca University viz. Rwanda and Nigeria. Further under his able administration and assistance there are ten campuses of Azteca doing well from education, training to research and development. He actively engaged in innovative program development, collaboration for the university, internal management. He is also doing well in research and development in diverse fields viz. Management, Education, Psychological Studies, Physical Education & Sports etc.

He won different awards, medals, honors in his long term academic and administrative carrier. In recent past he also been selected as a Fellow in one of the leading Scientific Organization called International Scientific Research Organization for Science, Engineering and Technology (ISROSET), India.

He is a Consultant Member for United Nations for more than 23 years; also collaborating with UNESCO and DPI NGO Section at United Nations.

Dr. Sushil Sharma, *PhD*

Dean, College of Business, Engineering, and Technology.
Texas A&M University, Texarkana, USA

Prof. (Dr.) Sushil Sharma is the Dean of the College of Business, Engineering, and Technology. Before this, he was an Associate Provost and Graduate Dean at Texas A&M University, Texarkana USA. Before he joined Texas A&M University, he worked as an associate dean and a professor of Computer Information Systems (CIS) at the Miller College of Business at Ball State University. Dr. Sharma also served as the Chair of the Department of Information Systems and Operations Management and Executive Director of the MBA and other Certificate Programs. He has over 25 years of administrative leadership experience and more than 30 years of experience in higher education.

Dr. Sharma also has the unique distinction of earning two doctoral degrees. A Leadership Fellow in Higher Education through the Management Development Program at Harvard University, he has co-authored/edited/co-edited sixteen (16) books and published over one hundred (100) refereed research papers in the most reputed national and international Management and MIS journals. In addition, he has published over fifty (55) refereed chapters in various books and has presented and published over one hundred and seventy-five (175) papers at various national and international conferences. His work has over six thousand citations [Google Scholar] and has a high h-index. Dr. Sharma's research has appeared in several top-ranked journals in the MIS field. Before joining the faculty at Ball State, he held the associate professor position at the Indian Institute of Management, Lucknow (India), and was a visiting research associate professor at the University of Waterloo (Canada). Dr. Sharma held several academic administration positions including the chair of two different departments (Chair of Placement, Chair of Student Affairs and Alumni) and head of the Computer Center at the Indian Institute of Management, Lucknow (India).

His primary research interests are in IT adoption, information systems governance, e-learning, e-government, computer-mediated communications, computer information systems security, human-

computer interaction (HCI), health informatics, and community and social informatics. He has received several high-level outstanding awards (Outstanding Researcher, Outstanding Faculty, and Outstanding Administrator) at Ball State University. Dr. Sharma has been a featured keynote speaker at various international conferences, professional forums, executive development seminars, and academic conferences worldwide on a wide variety of topics. Dr. Sharma has served as the editor-in-chief/ co-editor-in-chief of the International Journal of E-Adoption from 2007 to 2020. He has been a guest editor, associate editor, reviewer, and member of the editorial boards for several national and international journals in MIS.

Dr. Edward Roy Krishnan., *DBA, EdD, and PhD.*

Director General
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Ky. Col. Prof. (Dr.) Edward Roy Krishnan is a multifaceted individual who wears many hats in the world of higher education. He is the founder and Director-General of the European International University, EIU-Paris, where he has been a disruptive force in providing equitable and affordable high-quality international higher education to all, especially marginalized segments of society.

Dr. Krishnan is also the Director of Pedagog.ac, the first and only blockchain-powered online learning platform with AI and machine learning algorithms. He is an education consultant, teacher trainer, author, and researcher with a passion for writing. Dr. Krishnan has devoted his life to leveling the playing field in education access and has multiple degrees to his name, including an MA in Education with a specialization in Curriculum & Instructions, MBA, MS in Counseling & Psychotherapy, MPhil, DBA, EdD, and PhD.

Dr. Krishnan is a strong advocate for the integration of neuroscientific principles into digital teaching and learning practices. He firmly believes that understanding the brain's cognitive processes is crucial for creating effective and engaging learning experiences that maximize student learning outcomes. By utilizing neuroscientific research, Dr. Krishnan aims to create a digital learning environment that optimizes information retention and transfer while promoting critical thinking and problem-solving skills. Through his work, Dr. Krishnan hopes to revolutionize the way we approach education and help students reach their full potential.

Dr. Krishnan is a highly regarded academic who is dedicated to sharing knowledge of research methodology with students and scholars a like. With extensive experience in the field, Dr. Krishnan has become a trusted advisor to many scholars, offering guidance and support as they under take their research projects. As a supervisor, Dr. Krishnan is committed to helping scholars develop their research skills and achieve their academic goals.

Dr. Krishnan's extensive knowledge and expertise in the field of education have led him to be a highly sought-after speaker, trainer, and visiting

professor at universities. He has published extensively on various topics related to education, and his work has made a significant impact in the field. Dr. Krishnan is a true trailblazer, committed to making a positive difference in the world through education.

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