

PROLOGUE

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This set of timely, important and distinguished twelve papers strengthens the transdisciplinary and novel linkages between the fields of human factor engineering, societal resilience, engineering decision analysis, and computational intelligence. These emerging information technologies are essential for sustainability in the era of the COVID-19 pandemic. The twelve papers are associated with the Honoulu, USA-based conference entitled “Recent Trends in Computer Science and Engineering (RTCSE)”. We take a unified and holistic approach to the topic: Rather than isolating, stovepiping, and artificially separating the mathematical approaches from their ‘real world’ use, the dozen contributors to this unique 3C Technologia special issue have taken a unified and integrated perspective.

The need for computational intelligence and societal resilience is growing. The 2021 tensions in Belarus preceded the 2022 uprising in Kazakhstan; the November 2015 terrorist attacks in Paris by the Islamic State and ongoing conflict in eastern Ukraine, Syria and Iraq are recent and important cases. On March 22, 2016, three coordinated nail bombings occurred in Belgium by the same Brussels-based Islamic State terror cell connected to the 2015 Paris terror attacks and other smaller-scale attacks against targets across Europe.

The focus of the Sixth Annual RTCSE International Conference demonstrated the value of the importance of focusing more attention on holistic computational intelligence and the engineering and human factors decision-making issues that their work informs. In this way, the twelve papers in this vital collection help mathematicians, biologists, chemists, engineers and computer science scholars promote a safer and more secure society. This special issue successfully helps reduce disaster risk and promote societal resilience in the face of the global pandemic. It also allows academics, theoreticians and practitioners from both the social and natural sciences to a better model and understands the complex and intricate relationships related to emerging issues in the 21st century. These evolving, intertwined, and complicated issues range from biomedical engineering to climate change and the technological reliability of engineered systems.

The first paper involves the design of an automatic limb therapy rehabilitation device. Here the authors investigate the importance of medical recovery and the latest advances in rehabilitation. The authors review the background of therapeutic rehabilitation and explore possibilities for future research. Key issues involve patient health and advances in limb therapy rehabilitation

The second paper involves prototyping a Model RC Plane for Agricultural Applications. The agricultural sector is growing in importance as we enter an era of climate change and food shortages. Here the authors discuss advances in computational intelligence and mathematical modelling for the agricultural sectors. The proposed plane constitutes a valuable and timely approach for innovating new advances in aviation design.

The third paper involves a broad range of related papers on topics centred around the theory, analysis, and implementation of the design and analysis of sustainable beach cleaners. It can achieve tremendous progress towards sustainability and help with conflict transformation and sustainability in the Anthropocene, a new geological epoch in which humans are a dominant geophysical force-producing previously unimaginable impacts on the earth from global warming to catastrophic deforestation and climate refugees. The need for sustainable beach cleaners is now more urgent and important than ever.

The fourth paper is entitled “Sustainable Electricity Generation and Storage Mechanism through Doors”. Here the authors propose a novel approach for sustainable electricity

generation that can help to promote renewable energy, reduce environmental risk and confront society's energy and health crises. In summary, this distinguished, cross-disciplinary, valuable, timely and interdisciplinary paper examines the most challenging sustainable energy and societal-technologic dilemmas facing today. It is critically important in light of recent health and environmental crises and other black swan events facing society. This paper has a special emphasis on crafting original comprehensive, sustainable and intelligent solutions to sustainable energy generation. In this way, the paper can help confront and transform technological challenges effectively.

The fifth paper is, entitled "A Digital transformation model focused on Peruvian industrial fishing", was presented at the conference on "Recent Trends in Computer Science and Engineering (RTCSE)" in Honolulu. The paper uncovered several innovations for fishers and environmental managers. The theories and practice of digital transformation and sustainability in the Anthropocene can provoke new understandings of group decision and negotiation for the fishing industry, new industrial fishing politics, environmental temporality, conflict transformation, spatiality ethics values, and responsibility.

The sixth paper is called "Supercapacitors and their Enactment for renewable energy resources". The authors present innovations for electrical engineering as they relate to sustainability and supercapacitors. A new kind of environmental transformation becomes possible when we consider that the stakes of not addressing renewable energy involve irreparably damaging the world we inhabit and constraining options for future generations. Therefore, this paper is relevant to the dynamics of renewable energy modelling, conflict transformation, and group decision processes in the Anthropocene to promote a more sustainable future.

The seventh paper is entitled "Variable on-tie Control to achieve high efficiency for AC/DC border line current-mode buck converters". The authors discuss advances in control systems and computational intelligence for new insights in systems design and electrical engineering for converter systems. Possibilities, prospects and the potential for revolutionary advances in electrical and electronic engineering are put forth.

The eighth paper deals with "Deforestation in Peru and a Strategic Plan to deal with Deforestation in Amazonian Forests". Key lessons learned involve plans, policies and

administrative actions to improve the health of forests in Peru. Conflict transformation among decision-makers involved in Amazonian deforestation is a core construct of forest-based group decision and negotiation and has accrued several meanings, including the transformation of forest policy issues, rules, structures, actors, relationships, societies and environments. The topic of deforestation is particularly relevant and topical as the COVID-19 post-Cold War international system is experiencing an increase in the scope and intensity of environmental conflicts precipitated by global climate change, political power struggles, the emergence of non-state factions, resource depletion, and internecine ethnic rivalries.

The ninth paper is entitled “Project Management And Its Relation To Land Management In The San Pablo Town Center, Valera District, Bongará – Amazonas”. In this paper, the authors focus on advances in environmental management and resilience theory to reduce degradation and improve productivity in the Amazon. Traditional tools and approaches for analyzing and resolving project management disputes have shown to be inadequate to deal with these political, social and environmental conflicts in the Amazon region. During the Anthropocene, project management decisions increasingly occurred within protracted, expensive, and complex interaction networks. Future work suggesting advances in ecological resilience are proposed.

The authors of the tenth paper discuss the urgency and importance of urban hazards: “The Application of Ordinance Number 310-2009-MDJM and noise pollution from the vehicle fleet in the Jesus Maria district”. Noise pollution is a growing curse in an urban environment. There is a need to agree on the optimal rules and regulations to promote sustainable urban planning. The authors propose innovative and powerful solutions to promote a more resilient and sustainable future.

The eleventh paper deals with education and optimal temperature levels. The authors present a paper entitled “Evaluating Thermal Comfort in the Educational Institutions of the Puno Region”. Here key solutions for improving the performance and sustainability of heating and cooling systems are put forth. The authors particularly discuss a novel solution to the problem of achieving ideal comfort. The system is designed such that cost and reliability are key variables. The system can operate at various scales in multiple educational centres.

The proposed system is a prototype of a large-scale system and demonstrates the overall system design for thermal comfort management. This process is also time effective, robust and can withstand the demands of either a commercial, educational or industrial setting.

The twelfth paper is named “Big Data Analytics Capabilities, Innovation and Organizational Culture: Systematic Literature Review and a Future Research Agenda”. Here, the authors discuss creativity in the artificial intelligence era: they note that large benefits can accrue from insights into innovation and research. Currently, large amounts of human capital and industrial resources are wasted every year. They created a detailed literature review to uncover many clever applications for big data analytics with the organization culture integration.

The thirteenth paper is named “Automation of report generation for functional testing - E-Services Operator”. The authors describe the conversion of traditional business operations into digitalization. The present role of ICT in all applications are discussed, and the importance of ICT with e-Commerce is provided in their discussion. From a business owner’s point of view, his traditional services’ automation is considered and presented their work with e-Services automation.

The fourteenth paper is named “Control and Alert Mechanism of RFID Door Access Control System Using IOT”. The authors proposed the general door access control system. Their presented work focuses on the Internet of Things and RFID-based technologies integrated, door access control and alert mechanism. Based on the vibration of the door, the system identifies the malfunction with the deployed sensors, and instead of alerting, the door is locked properly in their proposed work as a result of enhanced security.

Accordingly, the fourteen papers in this special issue comprise wide-ranging interpretations and explorations on renewal and sustainability. It should be noted that these papers constitute a sample of the leading papers published in recent Gynacity conferences. In the globalized twenty-first century, big data, societal resilience, conflict transformation and disaster risk reduction strategies often involve international actors and issues as a significant crisis in one country can create disruptions around the world. For example, on March 11, 2011, Tohoku Earthquake in east Japan led to a tsunami, a nuclear facility malfunction, and global economic impacts, which influenced renewable energy decisions in Europe.

Moreover, severe flooding during the 2011 monsoon season in Thailand damaged Honda's automotive plants near Bangkok, negatively impacting the production of vehicles in Europe and Japan and leading to global supply chain disruptions finally, while the 2004 Boxing Day Sumatra-Andaman earthquake and tsunami in Indonesia caused the death of 543 Swedish citizens across the Indian ocean region --- the deadliest disaster in modern Swedish history.

This collection of papers strengthens interdisciplinary linkages and investigates current gaps in big data knowledge and the opening of new research avenues for integrated computational intelligence research. In summary, this cross-disciplinary and transnational collection of papers examines the causes and consequences of human suffering and ecological degradation, with a special emphasis on crafting AI-informed soft computing solutions that are not only cost-effective but also comprehensive and sustainable

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