



Innovating for Sustainable Development

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Research, development, knowledge, and creativity have always been the fuel for advancing humanities and answering the challenges of the current and next era. Sustainable future is vocal point where substantial works can pivot on it and contribute to the society, environment, as well as the science itself. Digital Futures International Congress (DIFCON 2022) bring together related research scholars, educators, practitioners, policy makers, enthusiasts, fellow students, and industries to share and exchange their research experiences and results from various fields. DIFCON 2022 is organized by Multimedia University (MMU). DIFCON 2022 was held online on 25-27 July 2022. DIFCON provides a multidisciplinary platform for gathering scholars from different disciplinary backgrounds to disseminate ongoing research related to digital futures of our society, following the “2030 Agenda for Sustainable Development.” With the congress theme of Innovating for Sustainability, DIFCON was held together with several co-located conferences, namely The Multimedia University Engineering Conference 2022 (MECON 2022), The 3rd International Conference on Communication, Language, Education and Social Sciences (CLESS 2022), The 2nd International Conference on Computer, Information Technology and Intelligent Computing (CITIC 2022), The 2nd International Conference on Law and Digitalization 2022 (ICLD22), The International Conference on Technology and Innovation Management 2022 (ICTIM 2022), and The 2nd International Conference on Creative Multimedia 2022 (ICCM2022). Several works that are presented in DIFCON 2022 are selected for publication in this issue of IJTech; and are summarized as follows.

Battery is used in many applications nowadays. Many studies in the areas of electrode with a good conductivity value and high flexibility is increasingly popular and can trigger various battery applications in the near future. The first manuscript is written by Aulia Ghifari Nurlis, Damar Rastri Adhika, and Suprijanto presents the effect of reducing agents on the performance of AgNP and PANI based flexible conductive fabrics.

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The second manuscript written by Xin Lin Lau, Tee Connie, Michael Kah Ong Goh, and Siong Hoe Lau demonstrates the usage of computer vision for posture and activity detection and applied for detecting people/elderly fall. With such system, first aid is expected to be delivered faster, increasing survivability chance of the victim.

The subsequent manuscript written by Azlan Abdul Aziz, Hanis Adiba Mohammad, Azwan Mahmud, Mohamad Yusoff Alias, and Nawaid Hasan discussed a novel block coding for LTE combined with DSRC, which increases vehicle network communication reliability, and may realize higher degree of automation in our live.

The subsequent manuscript is written by Choo-Yee Ting, Helmi Zakariah, and Yasmin Zukaikha Mohd Yusri. It highlights the fact that during Covid-19 outbreak or other conditions in which many people may require healthcare facilities, accurate assessment and resource allocation is crucial. To avoid healthcare resources being overloaded, a risk assessment method for Covid-19 patients is proposed and evaluated in this paper.

The two subsequent manuscripts are focusing on the application of computer vision and machine learning methods. The manuscript written by Yuan Qin Ong, Tee Connie, and Michael Kah Ong Goh demonstrates the usage of computer vision and machine learning for conserving nature which always been threatened by human activities, namely for detecting cow crossing and giving real time and localized alert for the drivers nearby. The manuscript written by Cheng Hao Ng, Tee Connie, Kan Yeep Choo, and Michael Kah Ong Goh demonstrates the usage of computer vision and machine learning for wildlife surveillance with the help of audio signal as additional input. Coexistence with nature is important for our sustainable future.

The manuscript written by Soo-Chin Tan and Swee-Huay Heng is focusing on the cybersecurity aspect of an electronic system. As many activities in our live are intertwined with digital system, data security is important. The manuscript presented an improved cryptographic method to secure a sample e-auction system, to protect the confidentiality and privacy of the user or organization using the system.

The subsequent manuscript is written by Chung Gwo Chin, Tong Jia Jian, Lee It Ee, and Pang Wai Leong. In this manuscript, it is exhibited that IoT can also be used for monitoring self-quarantine practice, such as giving alert when social distancing is not implemented, when body condition is showing unhealthy symptoms, etc.

The manuscript written by Iskandar Zulkarnain Jafriz and Sarina Mansor presented an advanced method employing machine learning for social distancing monitoring through retail surveillance camera, using Intel OpenVINO Toolkit.

Energy usage reduction for municipal can also be supported by IoT and automation, as discussed in the subsequent manuscript written by Nahin Ar Rabbani and Yee Loo Foo. Machine learning has also been used for pornography recognition, such as the one presented in the subsequent manuscript written by Sui Lyn Hor, Nouar AlDahoul, Hezerul Abdul Karim, Mohd Haris Lye, Sarina Mansor, Mohammad Faizal Ahmad Fauzi, and Abdulaziz Saleh Ba Wazir. The proposed work can in turn help protecting children, which also nurturing the internet and recent technology to become more inclusive for everyone.

Computer vision and machine learning is also used in the subsequent manuscript written by Hui Hui Tan, Rehan Shahid, Manish Mishra, and Sin Liang Lim for recognizing vehicle's vanity license plate, which may help to automate some tasks for the police or law enforcer.

To improve inclusivity of digital technologies, services, smartphone applications, and internet usage, a study in the manuscript written by Jia Yue Tan, Ah Choo Koo, Chui Yin Wong, and Wan Teng Lai is exhibiting important findings on intersecting factors which may promote female elderly to embrace such technologies.

The subsequent manuscript is written by Mohammed Ahmed Salem, Heng Siong Lim, Ming Yam Chua, , Su Fong Chien, Charilaos C. Zarakovitis, Chiew Yean Ng, and Noor Ziela Abd Rahman. In this manuscript, ray tracing approach, which commonly used for bringing 3D models into more visually realistic 2D images/videos, are used to assess 5G Network's signal quality. The result can be utilized further for micro-cell planning in search of optimal location to minimize cost and maximize user experience.

The next manuscript is written by Mohamed Omer Mahgoub Abdelrahim and Lini Lee. One of energy harvesting methods, triboelectric nanogenerator, is studied in this manuscript. The study is focused for DC electricity generator, and examines the effect of the vertical contact-separation mode against different materials.

Machine learning is also used for anomaly detection and prediction. The study in the subsequent manuscript written by Rawan ELhadad, Yi-Fei Tan, and Wooi-Nee Tan employs different machine learning techniques for predicting anomalous electricity consumption pattern. It in turns can ease the burden of load management in power grid implementations, and help reducing loses and inefficiency in the network.

The usage of computer vision is also demonstrated in the manuscript written by Mohamed Yasser Mohamed Ahmed Mansour, Katrina D. Dambul, and Kan Yeep Choo for detecting ripeness of oil palm fruit.

Recent advancements in battery material show promising development over polymer electrolytes for replacing the conventional liquid electrolytes in numerous applications. In the next manuscript written by Cha Chee Sun, Ah Heng You, and Lay Lian Teo, X-ray Diffraction (XRD) pattern is used for particle size analysis in regard of PMMA polymer electrolytes.

The work in the subsequent manuscript written by Tak Jie Chan, Yifan Li, Nor Hazlina Hashim, and Ameira Nur Iliany Ibrahim quantitatively study the competitiveness of a company as the factor of online promotional communication attributes.

The last manuscript is written by Fauzan Mustaffa, Mohamad Izani Zainal Abidin, and Muhammed Fauzi Othman. It demonstrates that the computer modelling can be employed for digitally reviving historical buildings or other architectural and cultural heritage. The work in [5878] brings a unique vehicle from several hundred years ago into a detailed 3D model. The vehicle was used by the Sultan of Melaka for important ceremonial purposes. It helps the current and later generations to appreciate the history and culture of Melaka.

We hope this special edition of IJTech includes beneficial and insightful discoveries which further triggers more explorations. We invite you to join us by sending in your research for consideration.

With warmest regards from Jakarta,



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