

Lecture Notes in Networks and Systems 616

Rajiv Misra · Muttukrishnan Rajarajan ·
Bharadwaj Veeravalli ·
Nishtha Kesswani · Ashok Patel *Editors*

Internet of Things (IoT): Key Digital Trends Shaping the Future

Proceedings of 7th International
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Preface

The 7th International Conference on Internet of Things and Connected Technologies (ICIoTCT) 2022 presents key ingredients for the 5th Generation Revolution. The recent adoption of a variety of enabling Wireless communication technologies such as RFID tags, BLE, ZigBee, etc. and embedded sensor and actuator nodes, and various protocols such as CoAP, MQTT, DNS etc. have made IoT step out of its infancy. The ICIOTCT 2022 was organized on Sept 29–30, 2022 by the Indian Institute of Technology, Patna, VKONEX (India) in collaboration with the International Association of Academicians (IAASSE) USA and it provided a platform to discuss advances in the Internet of Things (IoT) and connected technologies (various protocols, standards etc.).

Bihta, India
London, UK
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Muttukrishnan Rajarajan is currently the Director of the Institute for Cyber Security at City University of London and carries out research in the areas of privacy preserving data management, Internet of Things privacy, network intrusion detection, cloud security and identity management using blockchain. Raj has received funding from EPSRC, Royal Academy of Engineering, European Commission, Innovate UK, British Council and industry to carry out research in cyber security. He has supervised several Ph.Ds. jointly with British Telecommunications, UK in the area of data analytics for cyber security and network intrusion detection.

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Nishtha Kesswani has received prestigious awards, including the UGC Raman Post-doctoral Fellowship tenable in USA and the Young Teacher Award. She received the M.Tech. degree from the Malaviya National Institute of Technology (MNIT). She has a vivid teaching experience at several reputed universities, including California State University at San Bernardino and the University of Ljubljana, Slovenia. She has visited more than 15 countries and delivered invited talks at several conferences and workshops. She is currently with the Central University of Rajasthan, India.

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Secure Encryption Using Bit Shuffling

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Abstract


Information transfer over the Internet has historically been problematic due to security issues. After and during the pandemic, it was noticed that since there were many more digital transactions, there were also many more intrusions or hacks. Consequently, there is a

greater requirement for secure transactions. In this paper, a bit shuffle technique and cryptographic approach for image encryption and decryption have been proposed. Various tools for performance analysis were also used such as the number of pixel change rate (NPCR), the unified average changing intensity (UACI), the entropy analysis, which is a feature of an encryption scheme that demonstrates the randomness of the image and the correlation coefficient to assess the encryption's quality and determine whether it met the target standard. These findings demonstrate how secure the suggested cryptographic algorithm is.

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