Abstract

Can Blockchain Support the Broder Adaption of Internet of Things (IoT)?

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Abstract:

The convergence of big data and Fourth Industrial Revolution (FIR or 4IR) technologies such as the Internet of Things (IoT), Machine Intelligence, and Blockchain has had a profound effect on all aspects of society. The advancement of the world with the Internet of Things (IoT) or the Internet of Everything (IoE) fuels the explosion of machine-to-machine communications linked with the Internet. The IoT is expected to make trillions of connections, interfacing an unusual amount of data in areas such as infrastructure, energy, supply chain, health, agriculture, manufacturing and transport. While the rapid improvement of the IoT changes our lives positively, processing and securing a massive amount of data limits the enormous potential and practical application of IoT. Blockchain, a distributed ledger technology (DLT), which is considered as one of the fourth industrial revolution technologies, provides immutable and trusted data security and single-point failure to centralized servers. This talk is focused on how blockchain technology could be used for the Internet of Things and how the combined 4IR technologies can leverage the strength of each other. It will also recommend a unique platform where data can be generated, processed by making use of the IoT system, Machine Intelligence and the Blockchain technology; all integrated to achieve secure automation.

Biography:

Dr Malka N. Halgamuge is a Researcher in the Department of Electrical and Electronic Engineering at the University of Melbourne. She obtained her PhD from the same department in 2007. She was awarded the Chinese Academy of Sciences President's International Fellowship (2017), Incoming Leaders Fellowship from Australia India Institute @ Delhi (2016), Next Step Initiative Fellowship (2015), Australia-China Young Scientist Fellowship (2014), Dyason Fellowship at the University of California (UCLA), Los Angeles, USA (2013), Early Career Researcher (ECR) Award from Alexander von Humboldt Foundation (2013) and Solander Fellowships at Lund University (2007 and 2008). She is the recipient of the Vice-Chancellor's Engagement Award (2010) and Vice-Chancellor's Knowledge Transfer Award (2008) for her research at the University of Melbourne. She has published more than 120 peer-reviewed technical articles attracting over 1395 Citations (h- index = 21, i10-index=37). Her Research Gate RG Score is 38.22, and SciVal Field-Weighted Citation Impact is 1.1 (2017 - 2020). She was the Keynote Speaker (EcoSSSoil'19 Seoul, South Korea, EPRF'18 Kerala, India) and Plenary Speaker (ICBET'18, Bali, Indonesia). In addition to her publications, her research has acquired significant attention, resulting in an invitation to present 48 invited/guest lectures at Universities and Industry including Oxford University, IBM Research, and the delivery of 9 IEEE talks. She has also conducted 17 journalist/media interviews and articles (Science Alert, Melbourne Voice, Moreland Leader and GradNews etc.) as well as two video interviews, including one in ABC News Australia. She is passionate about research and teaching university students (Blockchain and Smart Contracts for Data Security and Interactive Environment, IoT, Business Intelligence in Big Data, Machine Learning Solutions, Bioelectromagnetics, and Hyperthermia).

Publication of speakers:

1. Halgamuge, Malka. (2013). Pineal Melatonin Levels Disruption on Human Due to Electromagnetic Fields and ICNIRP Limits. Radiation protection dosimetry. 154. 405-416. 10.1093/rpd/ncs255.

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