Newton Fund: Institutional Links 2019/2020

Teesside University and King Mongkut's University of Technology Thonburi

Schedule for The Workshop on AIoT

Date: 1 September 2020

Time: 1PM – 4PM (UTC+07:00 Bangkok)

Venue: CB2301 and Online via Zoom

Meeting URL: https://kmutt-ac-th.zoom.us/j/91815447805

Meeting ID: 918 1544 7805

** Talk #1   1:00PM – 2:00PM

<u>Title</u>: MiddleBridge, the solution for bridging IoT application layer protocols to HTTP

<u>Speaker</u>: Dr. Tuul Triyason

    IP Communications Laboratory,

    School of Information Technology,

    King Mongkut's University of Technology Thonburi.

Abstract:

In the Internet of Things (IoT) era, data is handled and stored by software known as middleware (or IoT platform). IoT devices send such data through an application layer protocol that may be different from those supported by the middleware. In this work, the concept of IoT application layer gateway, called MiddleBridge, that translated IoT's application layer protocol into HTTP protocol. With the proposed approach, devices can send a message with IoT application layer protocol to a MiddleBridge, which restructures the message and forwards to an IoT middleware., reducing the time that a device spends transmitting. The users can config the messages conversion and forwarding in runtime through created GUI. The efficiency of this approach is assessed through the packet size and response times considering the data sent to a middleware.
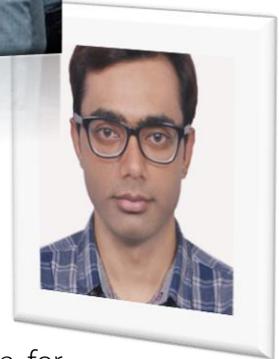
We would like to invite you to attend these Research Talks,

If you are interested in this research workshop,

please reserve a seat at this QR Code or https://forms.gle/nYjGoCJqZL2fADiV8

** Talk #2   2:00PM – 4:00PM

<u>Title:</u>   AIoT for Healthcare: Design and Development

<u>Speaker:</u> Dr. Mohammad A. Razzaque and Mr. Verma Suraj

Teesside University, Tees Valley, UK

<u>Abstract:</u>

Increasing volume demand of health service is challenging the government to ensure people reached minimum standard nationwide. With a power to handle complex mechanisms for human interactions, Artificial Intelligence (AI) could offer to accelerate existing information technology to respond to the availability of virtual diagnosis. Internet of Thing is state-of-art technology to handle data connection across the mobile device, incredibly smartphones. A combination of IoT and AI enhances existing devices to fascinate with the new experience for users as well as customers. They could gain benefits in handy to get disease examination upon virtual detection. AI software embedded within smart devices is a crucial approach to gain intelligence from end-users. Sensor data will be derived from devices to enable Machine Learning to analyse proper models. As a result, AIoT offers predictive algorithms to establish care environment with smarter performance. Human interacting with a machine will become more common in an automation system but remaining high effectiveness and safety for all groups of customers.

Short Bio: Dr. Mohammad A. Razzaque

Dr. Mohammad A. Razzaque (Raz) is a senior Lecturer in the School of Computing. Before joining Teesside he worked as a senior Research Fellow at the Trinity College Dublin (2014-2017) and senior Lecturer at the Faculty Computing, University Technology Malaysia (2011-2014). He is an expert in end-to-end (sensors-to-cloud) IoT solutions. His research and development are centered on IoT and cybersecurity. Since 2014, he has been also working on machine learning techniques, including deep learning techniques for IoT applications and cybersecurity. Since 2008, he is working in these areas of IoT and cyber security, successfully published more than 65 research papers and a book in these areas. Currently, he is working on end-to-end security, including hardware security in IoT, Smart Healthcare, and Deep Learning and Blockchain for cybersecurity.

He is working as a consultant in the areas of IoT solutions and use of machine learning techniques in business for SMEs in northeast England. He also organises and conduct workshops on ethical hacking, data analysis, and IoT. He holds a PhD in distributed systems (i.e., Wireless Sensor Networks, Mobile Adhoc Networks) from the School of Computer Science and Informatics, UCD, Dublin (2008). He also holds M.Sc. & B.Sc. (hons) in Electronic and Communication Engineering, University of Dhaka, Bangladesh.

Short Bio: Mr. Verma Suraj

Suraj Verma is from Nepal and currently he is pursuing Master in Data Science from Teesside University, UK. He is also working as a Research Assistant under professor Dr. Mohammad A. Razzaque. Here, he is working on a Research project for the detection of skin diseases using AI based smartphones. Besides this project, he is also working on a project for the detection of pancreatic cancer from CTscan Images using the technique of Image processing and Deep Learning. He has completed his Bachelor degree in Computer Engineering in 2014 and since then, he had been working as software engineer for the digitalization of healthcare sector of Nepal. He has also developed applications for hospital management system and a centralized surveillance system to understand and visualize the spread of diseases in Nepal. Before joining Teesside University, he was working as a senior software engineer at Cotiviti to design and develop applications for US healthcare industry.

He has strong background in mobile app development, web application design and development in .Net platform, database management and is exploring AI and Machine Learning for the implementation in healthcare sector to develop the most advanced medical system.