

Sensor Data Analytics with AI in a Connected World

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Learning from data is a key area of machine learning or AI that has had significant advancement in recent times with applications in Sensor Networks and Sensor data analytics. Sensor Networks play a great role in supporting Internet of Things (IoT) and we are increasingly being transformed into an IoT connected world. In a typically IoT connected world, data are being made available continuously. This keynote presents recent research supporting sensor networks as well as sensor data processing considering the following aspects:

Can the sensor networks be supported in its structure as well as in networking? Here I refer to two recent work jointly published with Dr Yahui Sun and others in IEEE/ACM Transactions on Networking [1,2].

How well do the existing data analysis tools cope with learning tailored to take the advantage of consecutive data streams coming from sensors? Our new research shows that only some methods are capable of analysing such data. Here I refer to recent work jointly published with Dr Damith Senanayake, Dr Wi Wang and others [3].

1 A Physarum-Inspired Algorithm for Minimum-Cost Relay Node Placement in Wireless Sensor Networks

Y Sun, D Rehfeldt, M Brazil, D Thomas, S Halgamuge
IEEE/ACM Transactions on Networking, 2020

2. The Fast Heuristic Algorithms and Post-Processing Techniques to Design Large and Low-Cost Communication Networks

Y Sun, M Brazil, D Thomas, S Halgamuge
IEEE/ACM Transactions on Networking, 2019

3. Self Organizing Nebulous Growths for Robust and Incremental Data Visualization

D Senanayake, W Wang, SH Naik, S Halgamuge
arXiv preprint arXiv:1912.04896, 2020