Editor's Note

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Sensor networks deals with study of set of transducers with a communication infrastructure used to monitor physical or environmental conditions, such as temperature, sound, pressure, speed, illumination intensity, sound intensity, chemical concentrations, pollutant levels, Body functions etc. International Journal of sensor networks and data communications helps us to gain knowledge on the recent technologies in the field of Data communications and networking research. This journal published volume 5 and issues 3 comprises of 8-10 peer reviewed articles which include research articles, review article, case reports, commentaries, etc. received from around the globe.

Kai Li studied the multi-hop heterogeneous wireless communication network consisting MAV network and Wireless Sensor Network (WSN) on the ground. The MAV-WSN hybrid system must also be concerned with the reliable data collection challenge. The MAVs can relay the data to a remote base station, which can help save energy for the ground sensors in the WSN. However, the aerial link on MAVs is not always connected due to the movement of MAVs. As a result, routing data in the MAV network causes significant delay. To achieve maximum through-put with lowest latency and energy consumption, the energy-efficient and real-time routing protocol is required to reduce the network energy consumption while guaranteing low latency, by flexibly selecting a combination of Air-Air, Air-Ground, Ground-Air or Ground-Ground link at each hop in the MAV-WSN [1].

Lu MH, et al. proposed an easy-to-use simulation platform which mathematically models the environment of PLC for feedback control. The FSK technique is proposed which provides a simple way to modulate the digital data and transmit on power carrier wave. The controller is designed to against disturbance corruption in power line while keeping control performance. Preliminary simulation study shows that it is capable of suppressing the influence due to AC voltage surge and noise in the PLC network [2].

Cheemalapati S, et al. demonstrated the real time fear detection using portable single channel EEG. The ANOVA test and standard deviation measurements show reproducibility of the SW/FW ratio metric conducted in the normal state measured four days in a row. The study is in agreement with previous studies on detection of emotional state using multi-channel non-portable traditional EEG systems. We demonstrated that not only specific emotion can be identified, but it can also be done dynamically, in real time, while traditional studies normally focus on a static identification with a large number of channels. The results are consistent with previous research indicating changes in SW/FW ratio during emotional stimulus Based on a multimodal experiment for the evaluation of fear, it was shown that facial temperature and subjective evaluation were more reliable than EEG signal recorded afterwards. Therefore, we focused on real time monitoring of EEG change with respect to scary stimulus and found the statistically significant reduction in SW/FW ratio. Since only 10 subjects were used in this study, further controlled experiments should be conducted with more subjects. This might be incorporated in wearable emotion detection systems, potentially as one of the available sensing modalities. The ability to identify fear in real time and potentially transmit this information remotely brings many important applications related to safety and security, especially when the scared person cannot verbally express this emotion. One example can be police officer under attack, so this device can be used to detect the danger and send help if needed. Another example can be a child that can be so scared of somebody that would never confirm that the person can be harmful, while this device would be able to identify the source of the fear and help with the protection of the child [3].

Azizi A, et al. studied the changing of ultimate tensile strength and elongation of the joints due to changing the speed of traverse as mechanical properties of FSW thick copper plate is modeled by RPLNN architecture and the model optimized using genetic algorithms as evolutionary artificial intelligence optimization technique. The results show that the generated model is reliable and can predict output with neglect able error.As future work, different mechanical properties can be

modeled using different artificial intelligent techniques and different optimization techniques can be used to optimize the models [4].

References

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2. Lu MH, Huang CC, Lin CL, Shen YJ (2016) Demonstrative DC Motor Control under Power Communication Network. Sensor Netw Data Commun 5:139.
3. Cheemalapati S, Adithya PC, Valle MD, Gubanov M, Pyayt A (2016) Real Time Fear Detection Using Wearable Single Channel Electroencephalogram. Sensor Netw Data Commun 5:140.
4. Azizi A, Barenji AV, Barenji RV, Hashemipour M (2016) Modeling Mechanical Properties of FSW Thick Pure Copper Plates and Optimizing It Utilizing Artificial Intelligence Techniques. Sensor Netw Data Commun 5:142.