Guest Editorial
Selected Papers from TANET 2018

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With the theme, "5G, Smart Living, Digi FinTech and e-Learning," the twenty-fourth Taiwan Academic Network (TANET) conference was held in Taoyuan, Taiwan on October 24-26, 2018. TANET is a domestic meeting offering an opportunity for faculties of computer centers, researchers in universities, and engineers in industries to exchange experiences and discuss novel skills in academic network. Among the submissions from the recommendation of the organizers of TANET 2018 and the open call-for-paper of Journal of Internet Technology (JIT), three papers pass the rigorous review processes and are finally selected to be included in this special issue.

5G on the fly triggers new issues and challenges to the existing academic networks and telecommunication networks. Internet of Things (IoT) applications rely on 5G networks are pursuing ultra-low latency and overwhelming data rate. Furthermore, brand new schemes and methods are continuously proposed due to the vigorous development of deep learning in artificial intelligence. Thus, a great number of emerging technologies and IoT services in 5G networks and IoT services is being explored nowadays. This is how the theme "5G, Smart Living, Digi FinTech and e-Learning" comes into place.

The first paper, "The Implementation of a Real-time Monitoring and Prediction System of PM2.5 and Influenza-Like Illness Using Deep Learning," by Yang et al. presents a series of analyses and predictions to the outbreak of parainfluenza. The authors utilized Long Short Term Memory (LSTM) model and open data to analyze parainfluenza and air quality index (AQI), and have implemented a visual system on a webpage. The implemented system is capable of predicting parainfluenza simultaneously according to the status of AQI.

The second paper, "Cycle-based Energy-saving Scheme for NG-EPON Networks with High Traffic Loading," by Liu et al. presents an intra-cycle sleep power saving mechanism for passive optical networks. The proposed mechanism redesigns the schedule of optical line termination so that the optical network unit (ONU) is able to sleep temporarily in the idle time and to awake from temporary sleep before the start of the next cycle. The simulation results have shown that the proposed mechanism improves power saving without raising extra delay.

The third paper, "The Study of a Risk Assessment System based on PageRank," by Kuo et al. implements an intrusion detection system (IDS) based on PageRank. Traditional network-based IDS (NIDS) or host-based IDS (HIDS) schemes cannot tackle web-based attacks. The implemented system integrates NIDS and HIDS to detect the suspicious behavior and estimates the risk value of IP by correlating the events of Netflow black list and access log. Experiments have shown that the implemented system is capable of finding the attackers through the higher risk value.

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Guest Editors
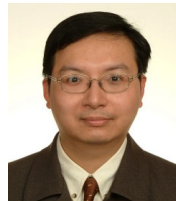
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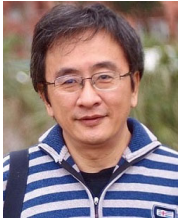
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