IEEE Transactions on Consumer Electronics
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for Special Section on

"Network Automation for Consumer Internet-of-Things in Smart Healthcare"

Theme: Consumer Internet-of-Things (CIoT), within the infrastructure of Industrial IoT towards Industry 4.0, trends to be proliferated by the exponentially increasing amount of devices and corresponding traffic. Healthcare systems require revolutionary upgrades, which have exposed extreme shortage in remote personal healthcare (remote monitoring, diagnosis, and consult) in COVID-19 pandemic. Therefore, smart healthcare has been contributing to evolutionary development of healthcare systems towards automation, digitalization and virtualization of Healthcare 4.0, with remote and pervasive data collection by CIoT. In fact, smart healthcare has been well proven to potentially target the United Union (UN)'s 2030 goal "Good Health and Well-being", to promote high-quality digital services available for all at all ages. However, plethora of challenges for CIoT based smart healthcare have to be tackled. Large-scale and ultra-dense CIoT networks highly demand computation-efficient automated network coordination, to facilitate smart healthcare with ultra-low latency, high quality of service (QoS)/quality of experience (QoE), low cost, and high privacy protection, etc.: Physical-level deployment for accurate sensing, reliable transmission, efficient spectral planning, etc. for CIoT should be optimally developed; Edge/cloud computing based network coordination with dynamic resource allocation is highly demanded for the boosted traffic in smart healthcare, with data collected from huge amount of CIoT devices; Reliable and real-time user coordination and interaction (patients/hospitals/healthcare workers, etc.) should also be ensured, meanwhile with high privacy/security; cross-layer comprehensive optimization systemically also lacks significant research efforts, as promised by 5G and beyond, which is vitally important for smart healthcare to coordinate distributed healthcare database among multiple service providers, efficiently. All the above-mentioned challenges should be tackled automatically, falling into the emerging popularized research domain of network automation towards 5G and beyond. Therefore, pervasive AI has been well acknowledged to be essential, upgrading energy/time-hungry conventional network deployment towards ultra-large-scale CIoT in smart healthcare.

This Special Session on "Network Automation for Consumer Internet-of-Things in Smart Healthcare" focuses on the development and applications of advanced technologies and methodologies for the deployment of CIoT in smart healthcare, towards pervasive AI and human-robot-interaction and –collaboration network automation.

This special issue will focus on (but not limited to) the following topics:
- Theoretical modeling, analysis and development for network automation for CIoT
- Automated multi-dimensional RAN deployment for emerging technologies of 5G/6G (e.g., THz, LPWAN: NB IoT, LoRa…)
- Smart sensing/sensor design in CIoT for smart healthcare
- Physical-level network deployment for CIoT in smart healthcare
- 5G/6G based softwarization/virtualization technologies for CIoT network automation
- Edge/cloud computing based network automation technologies for CIoT based smart healthcare
- Data accuracy analysis and self-healing technologies for CIoT based smart healthcare
- Standardization and analysis of network automation for CIoT and healthcare systems
- Data security/Privacy-aware network automation for CIoT and database in smart healthcare
- Applications and testbeds of CIoT based smart healthcare

Timetable: **Deadline for manuscript submissions**   **November 31, 2022**
                  Expected publication date (tentative)   **December, 2022**

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