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SPECIAL ISSUE ON

Heterogeneous Cloud-Based Intelligent Computing for Next-Generation 5G Applications

Overview:

Nowadays, a large number of mobile services offer great opportunities of connecting anything at anytime for human beings, e.g., mobile social services, crowdsourcing, crowdsensing, mobile searching, wearable services, mobile robots, etc. However, current mobile services suffer from challenges of high overheads, low quality-of-experience (QoE) and low energy-efficiency. Recent advances of cloud computing, edge computing and artificial intelligence provide a feasible way to address the above concerns and make these mobile services be smarter, more user-friendly but less energy-consuming. With the aid of emerging wireless communications, ubiquitous mobile service providers can interact with each other or even connect to edge/remote cloud computing services via mobile Internet, which potentially establishes a powerful and virtually unlimited computing infrastructure. The fifth generation network (5G) is emerging as a promising solution to meet the above requirements. Thus, heterogeneous cloud-based intelligent computing offers great promises for next-generation applications beyond the capabilities of current service providers.

Firstly, mobile service providers employing advanced artificial intelligent techniques, e.g., deep

clustering, deep learning, big data analytics, can make intelligent decisions of how to offer proper services to users in an user-friendly way. Such smart services are offered by learning from past experiences with some specific optimized objectives such as minimizing energy consuming and maximizing quality-of-service (QoS)/QoE. However, complex machine learning techniques are generally computation and memory intensive, which is infeasible for a single service provider. On the other hand, heterogeneous cloud integrating cloud, edge and local computing provides unlimited and on-demand computational and memorial resources in a scalable manner. Hence, it is worth combining heterogeneous cloud with intelligent computing to facilitate next-generation mobile services. Secondly, service providers employ a large number of smart devices, e.g., smart sensors, wearable devices and smart phones, to generate a huge volume of mobile data over a short period of time. Accordingly, they utilize heterogeneous cloud-based mobile big data analytics to infer useful information and implicit behavior patterns to further enhance the quality of mobile services. For example, an advertisement recommender would apply big data analytics to analyze mobile big data collected from users, then he/she can determine the preference of target users and make more accurate recommendation. Thirdly, the security of next-generation mobile services is of great concerns by users. Specifically, mobile service providers are required to ensure that their services are secure enough and privacy preserving. Moreover, these services themselves should be secure as well. In other words, service providers should confirm that they provide right services to right users. Hence, learning algorithms, communications, user data and smart devices themselves must be protected seriously at the beginning of mobile service composition.

Topics:

Potential topics explored in this Special Issue include, but not limited to the following aspects:

- Mobile, edge and cloud computing technologies for 5G applications
- Advanced clustering technology and its applications in mobile services
- Advanced machine learning technology and its applications in mobile services
- Mobile big data analytics for next-generation 5G applications
- Intelligent visual information processing in mobile environments
- Intelligent wearable computing
- User behavior analysis and prediction in next-generation 5G applications
- QoS/QoE measurement and modelling in next-generation 5G applications
- Security and privacy in next-generation 5G applications
- Secure machine learning technology for 5G
- Emerging intelligent 5G applications

Important Dates:

- **Manuscript Submission Deadline:** February 28th, 2019
- Notification of acceptance: April 15th, 2019
- Submission of final revised paper: May 15th, 2019
- Publication of special issue (tentative): Fourth Quarter, 2019

Submission Procedure:

Authors should follow the MONET Journal manuscript format described at the journal site. Manuscripts should be submitted on-line through <http://www.editorialmanager.com/mone/>. A copy of the manuscript should also be emailed to the Guest Editors at the following email addresses.

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