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AI for Network Traffic Control

Network traffic control, which has been a crucial component of network systems, is able to significantly increase information delivery efficiency as well as resource utilization through monitoring, inspecting and regulating data flows. However, the proliferation of smart mobile devices in the IoT era and the future ultra-dense radio networks have greatly enlarged network scale while introducing highly dynamic topology. Explosive growing data traffic impose considerable pressure on the management of the Internet. In addition, the advances in cloud services together with edge computing and caching technologies have substantially changed the traffic flow models and the service architecture of the Internet, which further pose new challenges on scalable and adaptive traffic control.

Recently, Artificial Intelligence (AI) has made a significant breakthrough in achieving high efficiency and adaptability in a variety of applications, such as healthcare, automotive industry and financial analysis. Naturally, AI can be a very promising approach to deal with dynamic and large-scale topology such that we can explore AI techniques, e.g., statistical learning, feedforward neural networks, deep recurrent neural networks, for intelligent traffic control. Despite all the possibilities offered by AI for network traffic control, there are a number of new challenges including adaptive scheduling of artificial computing, cooperation of heterogeneous intelligent schemes, and computational complexity. These open questions should be carefully studied before we can explore the full potential of AI-inspired approach for intelligent network traffic control.

This special issue aims at soliciting high quality and unpublished work regarding the latest advances in the area of AI-inspired network traffic control. Topics for the issue include, but are not limited to:

- New architectures and mechanisms for AI-based network traffic control
- Machine learning, deep learning for intelligent network traffic control
- Big data driven approach for intelligent network traffic control
- Intelligent network traffic control in wireless networks, e.g., 5G, wireless mesh networks, mobile social networks, wireless sensor networks, crowdsourcing, and vehicular networks

- Joint scheduling of computing, communication, and caching resources
- Energy-efficient design and deployment for AI-based network traffic control
- Cloud/Edge computing and analytics for AI-based traffic control

SUBMISSION GUIDELINES

Submitted papers should not be under consideration elsewhere for publication and the authors must follow the IEEE Network guidelines regarding manuscript content and format for preparation of the manuscripts. For details, please refer to the “Author Guidelines” at the IEEE Network Web site at http://www.comsoc.org/netmag/author-guidelines.

Authors must submit their manuscripts via the IEEE Network manuscript submission system at http://mc.manuscriptcentral.com/network-ieee .

All papers will be reviewed by at least three (3) reviewers for their technical merit, scope, and relevance to the CFP.

IMPORTANT DATES

- **Manuscript Submission:** April 15, 2018
- **First Revisions/Reject Notification:** July 15, 2018
- **Notification of Acceptance:** August 15, 2018
- **Final Manuscript Due:** September 15, 2018
- **Publication:** November, 2018

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