

## **Special Issue Call for Papers: Deep Learning for 5G IoT Systems** **International Journal of Machine Learning and Cybernetics**

### **Guest Editors:**

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- Prof. Chengqi Zhang, University of Technology, Sydney; Australia
- Prof. Yi Qian, University of Nebraska-Lincoln, USA
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In recent years, deep learning architectures, such as: deep neural networks, deep belief networks, recurrent neural networks and convolutional neural networks, have been successfully applied to many fields, including computer vision, speech recognition, natural language processing, audio recognition, social network filtering, medical image analysis, material inspection, where deep learning systems have produced results comparable to and in some cases superior to human experts.

There is an increasing number of 5G IoT systems, due to the advancement of electronics and communication techniques (e.g., wearable electronics, IoT devices, and 5G telecommunication solutions). Such technologies have enhanced the quality and performance of urban and suburban services, including healthcare, transport, energy, traffic, to name few. In recent years, with the prevalence of 5G IoT systems, while AI technologies enable more autonomous and intelligent functions, the security of these systems has become more and more important as more and more personal data are generated and communicated through such modern 5G IoT systems. Some of these emerging security problems cannot be solved by traditional security measures or by traditional privacy enhancement technologies. As a result, current 5G IoT system architectures are facing significant challenges to handle the security and privacy of increasing number of devices and servers as well as the protection of large volume of data that is processed in real-time. Therefore, new security methods and privacy protection solutions which depend on deep learning are required to build more secure and better privacy-preserving 5G IoT systems. An increasing trend in integrating deep learning with access control, intrusion detection/prevention, and behaviour analysis of 5G IoT systems has been recently observed. Such integration will play a vital role in providing enhanced security for intelligent autonomous 5G IoT systems and enables organizations to make crucial changes to their security landscape.

The focus of this special theme is on emerging deep learning models, architectures, algorithms and applications in simulating, modelling, analysing, optimization, and control of emerging 5G IoT systems. Researchers, developers, and industry experts are welcome to contribute papers for this special issue. Topics include but are not limited to the followings:

- Emerging deep learning models and applications for 5G IoT systems
- Hybrid deep learning models and applications for 5G IoT systems
- Deep learning architecture/algorithms for large-scale 5G IoT systems

- Deep learning for the prediction of data communications in 5G IoT systems
- Deep learning techniques for intrusion detection/prevention of 5G IoT systems
- Deep learning-based data analytics and decision automation in 5G IoT systems
- Deep learning-based malware detection of 5G IoT systems
- Deep learning-based behaviour analysis of 5G IoT systems

### **Submissions**

Submitted articles must describe original research which has not been published or currently under review by other journals or conferences. All manuscripts will be peer-reviewed. Instructions for Authors are available at the website: <https://link.springer.com/journal/13042>. Authors should visit the journal website for information on submission. An electronic copy of the complete manuscript should be submitted ensuring that the paper is identified as being submitted for this special issue. The special issue has been created as a submission question. The authors should choose “Original Paper” as the main article type for their papers and in the upcoming next submission steps, they will be prompted to answer a question “Does this manuscript belong to a special issue?”. For the response, a list of all special issues names will be displayed, and the authors can choose the special issue. The chosen special issue name will be displayed in “Details Page” and not under “Article Type” column in the online submission system. Please direct any questions about this special issue to Xiaochun Cheng ([x.cheng@mdx.ac.uk](mailto:x.cheng@mdx.ac.uk)) or Moayad Aloqaily ([Moayad@Gnowit.com](mailto:Moayad@Gnowit.com)).

### **Important dates:**

- Manuscript submission deadline: 28 August 2020
- First round review notification: 28 October 2020
- Revised manuscript submission deadline: 28 December 2020
- Final decision notification: 28 February 2021
- Expected publication: 28 March 2021



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