

## **CfP - The 1st International Workshop on Artificial Intelligence and Machine Learning Techniques for Enhanced Network Management (AIMLEM)**



The current interest in both Artificial Intelligence (AI) and Machine Learning (ML) techniques in the context of network management has come about due to the requirement to address the complex management of software defined infrastructures, including slices, SDN, NFV, and SFC features, which are beyond the reasonable input, scope and ability for direct human interaction. Progress in both computing hardware (such as GPUs, TPUs, and bespoke chip architectures), as well as the performance and accuracy of machine learning methods such as neural networks, has made Artificial Intelligence and Machine Learning realistic approaches for use in network management.

The AIMLEM workshop addresses both the advances and challenges related to Artificial Intelligence and Machine Learning techniques for enhanced network management of network elements and services in current and future highly dynamic and highly scalable 5G environments.

The advances and challenges are expected to be multiple, and there are clearly many open questions that need to be addressed, including:

- How can Artificial Intelligence and Machine Learning Techniques really be used for effective and/or enhanced network management
- What are the abstractions and knowledge representation / data models needed to ensure that AI is deployable for network management and orchestration;
- How do the existing technologies of networking, NFV, SDN, services become features and aspects of AI and ML, and how are they managed in this context
- Is it better to adapt existing components to support AI and ML, or is it better to design new ones, considering the price / performance trade-offs for introducing AI/ML in management and orchestration
- How can the use of induction and explanation systems of AI highlight what decisions have been made and how these situations have occurred.

AIMLEM aims at providing an international forum for researchers and practitioners from academia, industry, network operators, and service providers to discuss and address the challenges deriving from such emerging scenarios where AI and ML systems, processes, and workflows used in both service and network domains. The workshop welcomes contributions from both computing and network-oriented research communities, with the aim of facilitating discussion, cross-fertilization and exchange of ideas and practices, and successfully promote innovative solutions toward a real use of AI and ML.

Contributions that discuss lessons learnt and best practices, describe practical AI and ML deployment and implementation experiences, and demonstrate innovative AI and ML use-cases are especially encouraged for presentation and publication.

We are interested in *papers that use Artificial Intelligence and/or Machine Learning* the following topics:

- Distributed versus centralised management architectures and algorithmic approaches of AI and ML for 5G
- Dynamic management and orchestration for virtualized features of NFV, SDN, and SFC (including function placement, network slicing)
- AI assisted network and cloud slicing
- Data, information, and semantic models, and abstractions and knowledge representation for AI systems in network management
- Network data / metadata collection, analysis, distribution, and visualisation for operations and testing of AI/ML methods and algorithms
- Evaluation (performance and feasibility) of integrating AI and ML into the networks (e.g., operation, management and orchestration)
- Success scenarios of AI/ML demonstrated in network management
- And other AI / ML management and orchestration related topics

### **Important Dates**

*Notification of Acceptance:* December 18, 2019

*New Submission Date:* **November 30, 2018**

*Camera-ready Submission:* January 10, 2019

### **Submission guidelines**

Submitted papers must be original work, not under review at other journals/conferences, and may comprise a maximum of 6 A4 (210 mm x 297 mm) pages in 2-column IEEE conference style with a minimum font size of 10 pt. Papers should be submitted electronically using the EDAS online submission system. All accepted papers must be presented by one of the authors.

*Submission at:* <http://edas.info/N25418>

### **Proceedings**

Papers accepted for AIMLEM 2019 will be included in the conference proceedings and IEEE Xplore. The IEEE reserves the right to remove any paper from IEEE Xplore if the paper is not presented at the workshop.

### **Workshops Co-Chairs**

- Stuart Clayman (University College London, UK)
- Slawomir Kuklinski (Orange Labs, Warsaw, Poland)
- Qiong Zhang (Fujitsu Laboratories, Dallas USA)
- Min Xie (Telenor Research, Norway)
- Rashid Mijumbi (Nokia Bell Labs, Dublin, Ireland)

### **Workshop website**

<https://www.icin-conference.org/AIMLEM.php>

*The AIMLEM workshop is technically sponsored by the EU NECOS project (<http://www.h2020-necos.eu>)*