Contribution ID: **510** Type: **Sectional talk**

Structure of a distributed system for ensuring reliable IoT security

Thursday 10 July 2025 15:00 (15 minutes)

The study touches upon the relevant topic of ensuring the security of the Internet of Things (IoT), in particular, to prevent distributed denial of service (DDoS) attacks. Currently, especially in the context of active use of IoT on the African continent, it is necessary to constantly pay attention to a detailed study of DDoS attack vectors, detection of network traffic anomalies, as well as the issue of timely counteraction to the large-scale use of botnet orchestrations based on artificial intelligence (AI). In order to form an adaptive tool for detecting DDoS attacks, it is proposed to use a set of software libraries (intelligent framework) based on long-term short-term memory (LSTM) algorithms, self-organizing map (SOM), and models based on adaptive resonance theory (ART). To evaluate the effectiveness of recognition, such indicators as F1 score, recall, and accuracy are used. The proposed methodology will allow creating a model of an intelligent IoT security system using advanced protection strategies.

Author: Ms EVELYNE, Hakizimana

Co-authors: Dr ALEXANDER BORISOVICH, Degtyarev; Prof. DIK, Gennady

Presenter: Ms EVELYNE, Hakizimana

Session Classification: Round Table on the Areas of Work of the SPbSU-JINR Joint Scientific and Educational Laboratory