Dear Editor-in-Chief,

Please accept the enclosed manuscript, **"Anomaly Detection in Network Traffic Using Tensor Decomposition and IP-Based Multi-Aggregation,"** for consideration for publication in Elsevier's *Computer Networks*.

Traditional two-dimensional machine learning models often fail to capture the inherent multidimensional structure of modern IoT network traffic. To address this gap, we propose a novel anomaly detection framework that integrates Canonical Polyadic (CP) tensor decomposition with a new IP-based multi-aggregation technique and deep learning classifiers. This hybrid approach effectively manages high-dimensional data and resolves persistent challenges regarding automatic tensor rank selection.

We validated our method using the recent CIC-IoT 2024 dataset against complex DoS and DDoS scenarios. Our framework achieved remarkable results, including 99.96% accuracy and 99.6% recall, significantly outperforming traditional 2D approaches. Given *Computer Networks'* focus on network security and architectural challenges, we believe these findings will be of great interest to your readership.

This manuscript is original, has not been published previously, and is not under consideration elsewhere. All authors have approved this final version and declare no conflicts of interest.

Thank you for your consideration.

Sincerely,

Dr. Pouya Ataei (on behalf of all authors)

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