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IEEE Transactions on Dependable and Secure Computing

Dear Editor:

We would like to first thank all reviewers for their time spent making valuable and constructive comments and recommendations, which we greatly appreciated. We have studied comments carefully and made corrections which we hope meet with approval. All editorial remarks are already incorporated in this revision. We have updated our originally submitted research work, titled "I²RNN: An Incremental and Interpretable Recurrent Neural Network for Encrypted Traffic Classification" for publication in Special Issue on Reliability and Robustness in AI-Based Cybersecurity Solutions of *IEEE Transactions on Dependable and Secure Computing*. The paper is co-authored by Zhuoxue Song, Ziming Zhao, Fan Zhang, Gang Xiong, Guang Cheng, Xinjie Zhao, Shize Guo, and Binbin Chen.

Our paper proposes I²RNN, an Incremental and Interpretable Recurrent Neural Network model for encrypted traffic classification. We believe that our study makes a significant contribution to the literature because this novel method learns fingerprints from the raw session sequences, which has local robustness. Moreover, it is designed as an incremental model, which is time-efficient for adding new traffic types. More importantly, the I²RNN is an interpretable model, which provides the ability to rank time-series features and profile the inter-class distance between traffic types. Our study tries to resolve robustness, incrementality, and interpretability in current AI-based methods for encrypted traffic classification. First, our I²RNN can resist local noise disturbance in the packet sequence of sessions. Second, in real-world situations, new attacks are always emerging. Our I²RNN has the ability to handle these incremental scenarios. Finally, our I²RNN is not under a black-box setting. We can interpret the classification results according to the calculation process of I²RNN.

The technical areas of this paper: network security, deep learning, encrypted traffic classification, incremental learning, and interpretable learning.

This manuscript has not been published or presented elsewhere in part or its entirety and is not under consideration by any other journal. We have read and understood your journal's policies, and we believe that neither the manuscript nor the study violates any of these. There are no conflicts of interest to declare.

We deeply appreciate your consideration of our manuscript, and we look forward to hearing from you. If you have any queries, please don't hesitate to contact me at the address below.

Yours sincerely,

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