Politecnico di Torino
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Tailai Song is a 3rd-year PhD student at Politecnico di Torino (PoliTO), Italy, and a member of the SmartData@Polito research center. His research focuses on machine learning techniques applied to real-time communications to improve Quality of Experience (QoE). He worked on the topics discussed in this talk during his abroad period at the Austrian Institute of Technology, in Wien.

Towards Reference-free Web Phishing Detection via Graph Neural Networks

ABSTRACT

To combat phishing attacks, reference-based phishing detection hinged on multifarious resources and tools has recently emerged as the leading solution, while complexity and cost appear to be overlooked, fundamentally undermining the practicality of phishing defense. Meanwhile, conventional methods suffer from inherent defects, lagging in precision, generalizability, and beyond.

We advocate for a cost-effective workaround, rendering reference-based phishing detection unnecessary. To this end, we propose an end-to-end framework based on graph neural networks (GNNs), which exploits the HTML DOM structure. We compare our solution with multiple deep learning (DL) algorithms and reference-based approaches. We achieve commendable results without incurring in additional complexity and expense, paving the way toward lightweight yet effective reference-free phishing detection.