# Hacking the Web: "A Deep Dive into Cross-Site Scripting (XSS)"

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**Abstract**: *Advances in technology and the digitization of organizational functions and services have moved the world into a new era of computing capabilities and sophistication. The proliferation and usability of such complex technological services raises several security issues. One of the most critical issues is cross-site scripting (XSS) attacks. This paper focused on concise and accurate detection and comprehensive analysis of XSS injection attacks, detection and prevention. I conducted a thorough study and reviewed several research papers and publications with a specific focus on researchers' defensive techniques to prevent XSS attacks and divided them into five categories: machine learning techniques, server-side techniques, client-side techniques, proxy-based techniques, and combined approaches. Most of the existing state-of-the-art XSS defense approaches carefully analyzed in this paper offer protection against traditional XSS attacks such as stored and bounced XSS. There is currently no reliable solution that provides adequate protection against a newly discovered XSS attack known as DOM-based and mutation-based XSS attacks. After reading all the proposed models and identifying their flaws, I recommend a combination of static, dynamic, and code auditing in conjunction with secure coding and ongoing user awareness campaigns about new XSS attacks.*

**Keywords:** XSS Attacks, Defensive Techniques, Vulnerabilities, Web Application Security.