TU Clausthal

Abschlussvortrag Bachelorarbeit Youssef Fayed

„Context-Driven Secret Detection in Source Code“

This research addresses the critical security challenge of secret leakage in public code repositories, a prevalent issue that continues to pose significant security risks to organizations worldwide. Existing secret detection methods suffer from either excessive false positive rates that reduce their practical utility or limited applicability due to their focus on specific secret types or programming languages. To overcome these limitations, we present a context-driven approach that leverages a selection of machine learning models to identify various types of secrets across multiple programming languages. Our methodology places particular emphasis on understanding the surrounding code context when classifying potential secrets, significantly reducing false positive classifications while maintaining high detection sensitivity. Experimental evaluation demonstrates that our approach outperforms current state-of-the-art models in secret detection accuracy. The results show substantial improvements in precision without compromising recall, making the system more practical for real-world implementation. By developing a more generalizable solution to secret detection, this work contributes to the security community's toolkit for preventing credential exposure and subsequent security breaches in public repositories.

Betreuer der Arbeit:	Prof. Dr. Mohammad Ghafari, Prof. Dr. Benjamin Säfken (Institut für Mathematik)
Datum:	Dienstag, 20. Mai 2025, 15:30 Uhr
Ort:	Online-Meeting über BBB
	Link: https://webconf.tu-clausthal.de/rooms/0ey-cj7-pst-bj7/join