

Cybersecurity Professional Career Paper: White-Hat Hackers

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Introduction

How do you prepare for a cyber attack? How do you test your new firewall for your corporate office server protection? In cybersecurity the measures taken to protect data have no limits. From network security to human-centered cyber security there are many ways to protect your information. In this paper I'm going to tell you about the few people who are there, to ethically hack and test your cyber security. “White-hat Hackers.”

Abstract

“Ethical hackers are fast becoming an essential part of an enterprise's network security armoury.” White-hat hackers are consistently filling a role that helps beyond just cyber penetration testing. They play a critical role in modern day cybersecurity by adapting, identifying and mitigating vulnerabilities in digital systems. The demand for skilled white-hat hackers is constantly on the rise across industries.

Methodology

White-hat hackers follow a very structured and ethical methodology to eliminate and identify vulnerabilities.” Their process typically mirrors that of malicious hackers—but with permission and legal boundaries—to strengthen defenses before real attacks occur.” By using reconnaissance, scanning of the system, a vulnerability testing, exploitation testing, post exploitation testing, reporting of vulnerabilities to then finally a remediation and testing. “These methodologies form the backbone of penetration testing and ethical hacking engagements,

ensuring that white hat hackers can simulate real threats while helping organizations stay secure.”

The counterpart

A white-hat hacker is an ethical hacker. They do have a counterpart, an opposite with similar values but different reasoning. That counter is a black-hat hacker. A black-hat hacker is an individual who uses their technical skills to gain unauthorized access to systems or data for malicious purposes, such as theft, disruption, or personal gain. They operate illegally and unethically, often causing harm to individuals, organizations, or governments.

Motivations

A white-hat hacker’s motivations are very simple. They strive the same as a black-hat hacker with ethical intentions. Their motivations include ethical responsibility, where most white-hat hackers are very inspired by justice and desire to protect individuals from malware attacks. They strive off intellectual technology curiosity, they often have a desire for complex problems which is why this career fits. They also reap the financial incentives, oftentimes there are substantial bounty rewards for finding vulnerabilities before they are exploited.

Marginalization

White hat hackers can positively impact marginalized groups by improving cybersecurity protections, but their work also intersects with deeper systemic issues like unequal access to technology, disproportionate targeting in breaches, and surveillance risks. They protect those of society who cannot perform the same task as them on a computer. They do face the challenge of biased cyber attacks. Minority communities, activists and journalists are often the target of these

attacks. To better understand these marginalized groups, white-hat hackers can join these communities to understand the unique risk they face.

Conclusion

White-hat hackers now play one of the most crucial roles in the cybersecurity ecosystems. Their impact on the world cannot be understated. “Their efforts enhance public and organizational trust in digital systems, especially in sectors like finance, healthcare, and government.” White hat hackers are the unsung heroes of the digital age. Their ethical motivations and technical expertise make them indispensable in the fight against cybercrime.

Sites:

<https://www.sciencedirect.com/science/article/abs/pii/S1353485811700757>- This site gave a clear definition and description of a white-hat hacker along with their ethics.

<https://dl.acm.org/doi/fullHtml/10.1145/3043955>- This site dives into the rainbow of hackers, giving me the correct information to compare black-hat hackers and white-hat hackers.

<https://hhs.janlo.nl/articles/Whitehatstat.pdf>- This site gave me statistics and real life comparisons of data to compare my research with.

<https://www.mica.nl/en/hackers-who-are-they-and-why-do-they-do-what-they-do/>