



# CYBEROLOGY

AN OPTIMIZED APPROACH  
TO THE CYBER-WORLD

Edited by Mohd. Shahid Husain,  
Mohammad Faisal, Halima Sadia, Tasneem Ahmed,  
Saurabh Shukla, and Adil Kaleem

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# Cyberology

This book provides an insightful examination of cybersecurity threats and their implications across various sectors, including healthcare, agriculture, and government. It covers fundamental concepts in cybersecurity, including cybercrime laws, cyberbullying, and emerging technologies. It discusses challenges in detecting and preventing cyber threats and analyzes trends in cyber warfare and resilience. This book serves as a resource for understanding the complex relationship between technology and society, equipping readers with the knowledge needed to navigate the evolving cyber landscape. It is for scholars, students, and professionals interested in cybersecurity and challenges.

This book

- introduces the fundamental principles and theories of cybersecurity, focusing on the relationship between humans and technology;
- details various cyber threats affecting the digital world, healthcare, and agriculture, emphasizing their real-world implications;
- discusses issues like cyberbullying, threats in cloud computing, and vulnerabilities in cyber-physical systems;
- examines the difficulties in detecting cybercrimes, addressing advanced persistent threats, and fostering cyber resilience;
- analyzes current trends in cyber warfare and terrorism, providing insights into new security challenges.



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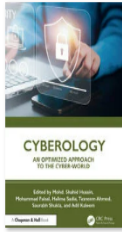
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Chapter

## A Comprehensive Analysis of Vulnerabilities and Cybersecurity Issues for Digital Agriculture and Food Industry

By Gausiya Yasmeen, Syed Adnan Afaq, Saman Uzma

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### ABSTRACT

The foundation of practically all countries in the globe is agriculture. Every cycle's area, from jobs to satiating food needs, is affected. The world's population is expanding more swiftly, which necessitates feeding more stomachs. To fulfill the growing demand for food, smart technology like IoT - Internet of Things - is already being applied in agriculture. Due to the widespread use of IoT technologies, virtually every sector of the economy, including food and agriculture, is also affected by digital transformation. Smart gadgets are routinely utilized by an extensive throng, including farmers and business owners. Such kinds of instruments are utilized in varied ways, from employing drones to assist with tasks like pesticide spraying to continuously nursing the health of harvests and the humidity content of the soil. The advantages of smart agriculture are immense; the condition of soil and seed traits can be observed using smart data, and new technology can provide conveniences never before possible while also enhancing the management and standard of agricultural farming. The advancement of agriculture to smart farming has resulted in an increase in cyber threats. Smart farming ecosystems are, however, exposed to a variety of cybersecurity threats and vulnerabilities due to the employing of IoT and smart communication technologies. Ransomware is the cyberattack that affects the food industry the most frequently right now. Such hacks may cause economic instability in countries that heavily rely on agriculture. As per reports food inflation has risen up to 4.5% which was earlier 3% in the year 2023. Moreover, this year was declared "El Nino" which can result in growth of the hunger index in poor nations. So, modern cultures' food supply chains are essential components. It