

Quantum Computing Impact on Cybersecurity: Unraveling the Unbreakable

Prof. Palak Agarwat and Atharva Ghavre

Asst. Professor and Research Scholar

St. Rock's College of Commerce and Science, Borivali (W), Mumbai, India

Abstract: *The advent of quantum computing presents a disruptive force that has the potential to revolutionize the field of cybersecurity. This paper explores the profound implications of quantum computing on the security landscape, focusing on its capacity to challenge the existing cryptographic protocols that underpin today's digital infrastructure. As quantum computers continue to evolve, they threaten to unravel the seemingly unbreakable codes that protect sensitive information, leading to new vulnerabilities and security risks. This abstract provides an overview of the impending quantum revolution in cybersecurity, highlighting the urgency for researchers, businesses, and governments to adapt and develop quantum-resistant cryptographic solutions to safeguard data and communications in an era where the unbreakable becomes breakable.*

Keywords: Quantum, Computing, Cybersecurity, Cryptography, Algorithm, Standardization