**Quantum Cryptography: Securing Communications using Homomorphic Encryption Schemes for Privacy-Preserving Computation in the Cloud**

Mallesh Darisi, Jyothi Sai Krishna Ravuri, Venu Linga, Prakash Raj Baskar Raj, and Anirudh Tallavajhula

University of Missouri Kansas City

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Sravya Chirandas

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**Abstract**

The project aims to delve into implementing homomorphic encryption as a method to enhance security and privacy of any communication and information shared and transmitted via cloud. Financial institutions such as banks are moving to the cloud for their data storage and transfer for ease of the information management due to the high volumes of data generated daily. The move however, puts the data for thousands of the clients at risk of cyber threats and thus it is significant to implement a high-profile cryptographic method to enhance security and privacy. This project aims to apply the homomorphic encryption through Quantum mechanisms to better the security and privacy confidentiality of financial data stored in the cloud. A new framework, based on the analysis of quantum cryptography algorithms and homomorphic encryption schemes, will be designed to improve the protection of privacy and security in cloud environments. This project aims to provide security and privacy to financial institution clients data stored in cloud.

*Keywords: Quantum Cryptography, Homomorphic Encryption, Algorithm, Cloud Environment*

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