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Integrating DNA Cryptography and Large Language Models for Next-Generation Secure Communication

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Abstract: *The DNA cryptography stores data in DNA's big space, many parts in parallel, and variability inside DNA parts, that makes it very secure. Large Language Models are good at creating and finding patterns in data, which constitutes their smartness and ability for continuous improvement overtime. Putting these two tools together solves problems in how to make keys, fix errors, and stay strong against new threats. Genome LM uses tokenization and transformer architecture for DNA encoding. Expected benefits are the increased key entropy, increased brute-force and statistical attack resistance, and improved error correction during decryption. But the impact of this discovery goes further than. First, this single use case yields revolutionary results for cloud computing. Medicine and finance alike, because it allows one to create a quick future- proof and scalable encryption method that is required for the constrained in resources; Internet of things IoT and edge devices.*

Keywords: Blockchain, Proof of Work, Consensus Algorithm, Cryptocurrency, Mining, Security, Distributed Systems, Byzantine Fault Tolerance system

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