INSTITUTO POLITÉCNICO DE BEJA
Escola Superior de Tecnologia e Gestão
Mestrado em Engenharia de Segurança Informática
Direito na Segurança Informática e no Cibercrime

Unveiling Samsung Quantum Galaxy: Securing Smartphones With Quantum and Post-Quantum Cryptography

Martinho José Novo Caeiro - 23917
Paulo António Tavares Abade - 23919

Beja, janeiro de 2026

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1 Article Analysis

The analysis of the article will be make through the answers to the questions on the *template* that was provided by the professor.

1.1 What is the name of the research?

The name of the research is "Unveiling Samsung Quantum Galaxy: Securing Smartphones With Quantum and Post-Quantum Cryptography".

1.2 Where the research was published?

The research was published in the journal "IEEE Access", which is a multidisciplinary, open access journal of the Institute of Electrical and Electronics Engineers (IEEE).

1.3 Who is the author?

The name of the author is Omar Alibrahim, a researcher with support from Kuwait Foundation for the Advancemente of Sciences (KFAS). The research was published on 2nd of May 2025.

1.4 What's the theory of research?

The theory of research is based on the integration of quantum tecnologies in enhancing mobile communication security, all thanks to the new features of the Samsung Galaxy Series.

1.5 What's the problem being addressed in this study?

The study explains that Samsung has a lack of effective implementation of Quantum Random Number Generator (QRNG) utilization in existing applications, something that could enhance security in mobile communications.

1.6 What are the objectives addressed?

The author has addressed this gap by developing a secure instant messaging and VoIP application that combines QRNG with post-quantum cryptographic algorithms.

1.7 What are the study's strength points?

1.8 What are the study's weaknesses?

1.9 Which type of methodology was adopted?

1.10 Clearly identify the adopted research design method.

1.11 Briefly explain the variable of analysis used on this study.

1.12 Cleary identify the criteria/equations that were used to validade results.

1.13 Critically analyze the presented results

1.14 What are the conclusions presented by the author?

The solution/conclusion that the author has achieved demonstrates that leveraging QRNG-generated randomness alongside PQC significantly improves security against emerging quantum threats, establishing a foundation for enhanced mobile data protection.

1.15 What is the contribution to the existing knowledge?

1.16 Can you accept the findings as true? Discuss any failing and shortcomings of the method used to support the findings.

1.17 Summarize your conclusion on the analyzing the benchmark.

1.18 What is the main gap that you have identified on this study, and that you are willing to address on your research?

1.19 Which part of the benchmark will you use in your study, in order to compare your results with their outcomes?

1.20 Conclude by summarizing the Research Problem + Research Gap+ Purpose of the study (MAXIMIUM 40 WORDS)