

## Counting-Based Secret Sharing Technique for Multimedia Applications

<sup>1</sup>Adnan Gutub, <sup>2</sup>Nouf Al-Juaid, <sup>3</sup>Esam Khan

<sup>1</sup>Professor at Computer Engineering Department, Umm Al-Qura University, Makkah, Saudi Arabia

<sup>2</sup>Teaching Assistant, Shaqra University, Saudi Arabia

<sup>3</sup>Assistant Professor at The Custodian of Two Holy Mosques Institute for Hajj and Umrah Research, Umm Al-Qura University, Makkah, Saudi Arabia

Corresponding Author: Adnan Gutub

### Abstract

Secret Sharing is required in situations where access to important resources has to be protected by more than one person. We propose new secret-sharing scheme that works based on parallel counting of the ones within the shares to generate the secret output. Our work presented two different modeling variations that are mainly different in the secret-sharing keys generation where both are studied elaborating their pros and cons. Our counting-based secret shares key reconstruction is implemented and simulated considering the security level required by the usage functions. Comparisons showed interesting results that are attractive to be considered. This secret sharing method is of great benefit to all multimedia secret sharing applications such as securing bank sensitive accounts and error tracking, voting systems trust, medical agreements, wills and inheritance authentication management.

**Keywords:** Secret Sharing, Key Management, Shares Generation, Information Security, Key Distribution Technique