

Exploring Data Transmission through Hedy Lamarr's Pioneering Approach

Security isn't always about hiding...
Sometimes, it's about hopping in rhythm.
(In the spirit of Hedy Lamarr)



Setting:
High school
gymnasium



Participants:
128 students as live
observers



Format: Interactive
demonstration and live
simulation

Workshop Structure:

This workshop explores secure data transmission through a method inspired by Hedy Lamarr's pioneering frequency-hopping idea. The entire activity unfolds as a live, logic-based interaction where observation, timing, and cryptographic thinking are central.

Introduction:

The presenter explains Lamarr's logic of pseudo-random channel switching, showing how secure communication works by shifting frequencies using a shared key.



Live Simulation (30–40 minutes):



Two volunteers are invited to the center of the gym. Each has access to a software simulation of Lamarr's method on a mobile device or laptop.

- One participant, the *receiver*, is given the correct 7-bit decryption key.
- The other, the *jammer*, has only a guess, or no key at all.

In this interactive show, the receiver uses a decryption key to collect a binary sequence, black-and-white tags randomly distributed among the audience, while the jammer attempts to predict and alter the stream. The final decoded message demonstrates synchronized frequency-hopping in action.

Educational Objectives:

- ✓ To visualize key concepts in data transmission, encryption, and jamming resistance,
- ✓ To introduce students to real-world applications of information theory and wireless security,
- ✓ To inspire curiosity about the intersection of technology, logic, and historical innovation.



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