Abstract

Can we model the spread of cybercrime using the same approach used for infectious diseases? This presentation introduces a novel epidemiological framework to analyze the dynamics between scammers and their victims. Using a five-compartment model calibrated with real-world data from the Canadian Anti-Fraud Centre, we track the lifecycle of cyber-enabled fraud.

To solve the continuous system without numerical instability, we employ a robust Non-Standard Finite Difference (NSFD) scheme. Our numerical and sensitivity analyses reveal a surprising truth: the most effective way to collapse a scam network is not by reducing victim gullibility, but by disrupting scammer recruitment and breaking the victim-to-scammer feedback loop. This talk will explore the mathematical tipping points of fraud endemicity and offer a new, proactive blueprint for law enforcement and policymakers to eradicate digital deception.