From Disclosure to Exploitation

A Comprehensive Analysis of IoT Vulnerability Targeting and Attacker Decision-Making

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Propositions

accompanying the dissertation

FROM DISCLOSURE TO EXPLOITATION
A COMPREHENSIVE ANALYSIS OF IOT VULNERABILITY TARGETING AND ATTACKER DECISION-MAKING

by

Arwa ABDULKARIM AL ALSADI

1. Attackers behind IoT malware strategically persist with a limited set of vulnerabilities, recycling established exploits across botnet variants. (Chapter 2 and 3)
2. Vulnerability selection in IoT malware is influenced by environmental context, including device type, prevalence, and ease of remote discovery, not just by technical flaw characteristics. (Chapter 2 and 3)
3. Before relying on tools for risk prioritization, organizations should empirically validate that their operational environment aligns with the conditions under which those tools were trained. (Chapter 4)
4. The decision to publish PoC exploits is driven not just by technical feasibility but by ethical judgment, vendor behavior, and cultural norms. (Chapter 5)
5. Doctoral programs' fixed timelines clash with unpredictable peer review, where acceptance resembles a lottery and resubmissions can take years.
6. The struggle of many women in cybersecurity has shifted from proving their right to belong in the field to proving they are there for their expertise—not as diversity metrics—marking a move from overt discrimination to subtle delegitimization.
7. The modern conference system ties academic discourse and research visibility to economic privilege, where participation depends on institutional funding or exclusive memberships.
8. The transition from coursework to independent research poses a conceptual challenge, from consuming established truths to generating uncertain insights.
9. Coming from a Middle Eastern background, embracing Dutch directness isn't easy, but once practiced, it's an emotional liberation.
10. Doing a PhD is like playing the longest Whac-A-Mole game between mental and physical health, just as one is fixed, the other pops up.

These propositions are regarded as opposable and defendable, and have been approved as such by the promotores prof. dr. M.J.G. van Eeten and dr.ir. C. Hernández Gañán.