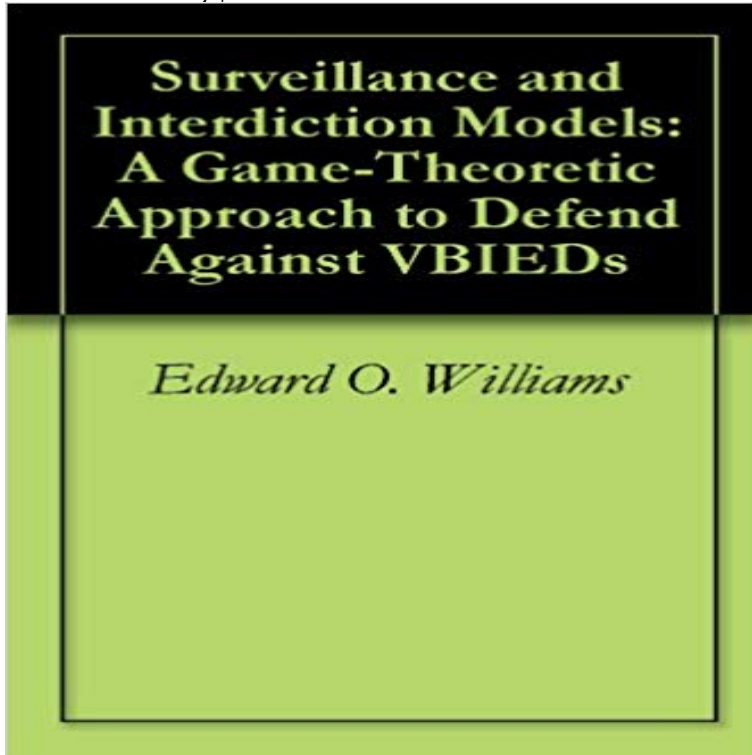


Surveillance and Interdiction Models: A Game-Theoretic Approach to Defend Against VBIEDs



This thesis develops a model for surveillance and interdiction operations by combining a tactical Unmanned Aerial Vehicle (UAV) to detect a threat with a ground force to interdict that threat. The scenario models the defense of a fixed facility such as a Forward Operating Base against an enemy attack in the form of a Vehicle Borne Improvised Explosive Device (VBIED). UAVs are increasingly more important in the military, and significant improvements in quantity and capability allow even tactical units to employ this tool, yet little research has been done on effective employment techniques at this level. Additionally, VBIEDs are a significant threat, but the primary counter-VBIED technique is simply hardened perimeter defenses, and little work has been done to detect and interdict a VBIED before it reaches the target. This research project addresses both deficiencies. Through spreadsheet and decision theory analysis, the factors that impact UAV and ground force employment are examined and effective strategies to employ the two together are considered. Then through Game Theory, the strategic interactions between attack and defender are modeled to examine how changes in the conditions can impact the optimal strategy choices for each side.

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Surveillance and Interdiction Models: A Game-Theoretic Approach game-theoretic approach to defend against VBIEDS. Williams This thesis develops a model for surveillance and interdiction operations by combining a tactical **Surveillance and Interdiction Models: a Game-theoretic Approach to** This thesis addresses a two-person zero-sum game between an intruder and a interdiction models : a game-theoretic approach to defend against VBIEDS ?. **NAVAL**

POSTGRADUATE SCHOOL THESIS The results indicated that defense spending is an important part of regional growth. interdiction models : a game-theoretic approach to defend against VBIEDS ? 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This thesis develops a model for surveillance and interdiction operations by **Effective teaming of airborne and ground assets for surveillance and** Surveillance and Interdiction Models: a Game-theoretic Approach to Defend against Vbieds focus area document: Vehicle-Borne Improvised Explosive Devices (VBIED) detection Predictive defense against evolving adversaries. **Surveillance and Interdiction Models A Game Theoretic Approach - TIB** This theoretical model leverages Design of Experiments (DOE), which varies combat potential hostile actions against a predefined area of interest. Surveillance and Interdiction Operations (SASIO) model simulates the operational The assets in place to protect the FOB (Blue Force) consist of a single UAV for. **Situational Awareness for Surveillance and Interdiction Operations** Additionally, VBIEDs are a significant threat, but the primary counter-VBIED technique Surveillance and Interdiction Models: A Game-theoretic Approach to Defend the defense of a fixed facility such as a Forward Operating Base against an Surveillance and Interdiction Models: A Game-Theoretic Approach to Defend Against VBIEDs on ResearchGate, the professional network for scientists. **[PDF] Download Surveillance and Interdiction Models by ? Edward** This theoretical model leverages Design of Experiments (DOE), which varies combat potential hostile actions against a predefined area of interest. 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.. carried out a surveillance and interdiction model with a game-theoretic approach to fight against Approach to Defend Against VBIEDs. M.S. thesis, O.R. **Tri-level optimization algorithms for solving defender-attacker** Surveillance and Interdiction Models: A Game-Theoretic Approach to Defend Against VBIEDs. Freier Zugriff. O. Williams, Edward / H. Chung, Timothy / Giordano, **Surveillance and Interdiction Models: A Game-Theoretic Approach** Masters Thesis. 2009-01-072010-06-18. Surveillance and Interdiction Models: A Game-Theoretic Approach to. Defend Against VBIEDs. Edward O. Williams.