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Leiden
The Netherlands

From inference to influence: applying causal game theory to complex security environments

Vonk, M.C.

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Propositions

accompanying the dissertation

From Inference to Influence: Applying Causal Game Theory to Complex Security Environments

by

Maarten Vonk

1. Methods that account for causal spillover are more appropriate than traditional no-interference approaches for analyzing complex security environments [Chapter 3].
2. The quality of Bayesian network discretization cannot be adequately assessed through any single measure, requiring a multi-criteria evaluation approach. [Chapter 5].
3. While Bayesian games are most appropriate for complex security environments, their complexity limits practical application. [Chapter 4].
4. Multi-agent modeling evidence suggests that systematic analysis of adversary responsiveness patterns may improve states' selection of cost-efficient counter-hybrid measures [Chapter 6].
5. Despite advances in causal discovery algorithms, their effective application in complex security environments remains contingent on integration with domain expertise.
6. In complex security environments, inadequate observational data quality and completeness frequently prevent effective causal inference even when sophisticated algorithms are available.
7. When modeling complex security environments, causal inference approaches benefit from integration with strategic interaction models to better capture actor interdependence and adaptive behavior.
8. Great power competition increases the demand for decision-support tools and makes strategic causal models more relevant for policy and planning.
9. Neither wonks nor geeks can solve complex security challenges in isolation, but their collaboration opens pathways to solutions.
10. Replacing human peer reviewers with Large Language Models will erode scientific inquiry.
11. In the counterfactual world where we could actually observe counterfactuals, causal inference researchers would be out of a job.

Maarten Vonk
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