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Application of Bayesian Networks to System Safety and Reliability

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Message from the Guest Editors

The Conventional Bayesian network (BN) and its advanced extensions the dynamic Bayesian network (DBN) and the limited memory influence diagram (LIMID) have become very popular in the last decade among safety and reliability communities.

The present Special Issue aims to deal with novel and innovative applications of BN to system safety and reliability assessment, other than its ordinary applications that prevail in cause–effect modelling and probability updating. Of particular interest are unpublished and original applications of BN (as well as DBN and LIMID) to the following:

- Safety/reliability assessment of dynamic systems, and modelling and analysis of dynamic failures and cascading effects
- Optimal/cost–benefit/safety-based design and decision-making
- Resilience/vulnerability assessment of systems with regards to random failures, intentional attacks, and natural disasters
- Human error probability assessment
- Innovative integration of BN with information theory, game theory, agent-based modelling, optimization techniques, etc., for foregoing application domains



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Special Issue