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Reliability-based sensitivity estimators of rare event probability in the presence of distribution parameter uncertainty

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Highlights

- Reliability sensitivity estimators of the predictive failure probability are proposed
- The distribution parameters are affected by epistemic uncertainty (use of a prior)
- Two cases are treated: sensitivities for unbounded vs. bounded prior distribution
- Efficient numerical estimation is achieved with Adaptive Importance Sampling methods
- Effectiveness of the method is highlighted on two academic and one realistic cases

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