

Addressing the Uncertainty Interaction Problem in Software-intensive Systems: Challenges and Desiderata (Summary)*

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Abstract. Software-intensive systems are increasingly used to support tasks that are typically characterized by high degrees of *uncertainty*. The modeling notations employed to design, verify, and operate such systems have increasingly started to capture different types of uncertainty, so that they can be explicitly considered when systems are developed and deployed. While these modeling paradigms consider different sources of uncertainty individually, these sources are rarely independent, and their interactions affect the achievement of system goals in subtle and often unpredictable ways. This vision paper describes the problem of *uncertainty interaction* in software-intensive systems, illustrating it on examples from relevant application domains. We then identify key open challenges that require further exploration, and define desiderata that future modeling notations and model-driven engineering research should consider to address these challenges.

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