

System Design Selection Guidance through Model Execution

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Abstract. The use of modeling languages as the primary means to capture and convey system information presents opportunities to improve the project outcomes. At present, however, such models are constrained by the static and textual nature of the formal requirements capture and model representation. This paper describes research into how such requirements and behavioral models captured in SysML may be executed. This allows quantitative and comparative assessment of the behavior of the designed system options against a set of informal requirements, thereby informing design decisions. The simulation exercises the behavior model of the proposed system in a simulated environment to ascertain how the system will perform against the formal requirements. The activity simulation is captured and displayed as a 3D animation to aid understanding of the system's expected performance.