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Integrated system failure analysis software toolchain (IS-FAST)

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Systems and methods are provided for generating faults and analyzing fault propagation and its effects. Starting from the ontologies of components, functions, flows, and faults, systems and methods are provided that describe, generate and track faults in a computer system across multiple domains throughout design and/or development. In order to construct the system and fault models, a series of concepts is introduced in the form of ontologies and their dependencies. An investigation is performed into the faults, including their type, cause, life-cycle aspects, and effect. Principles and rules are created to generate various faults based on system configurations. After the modeling process, a simulation engine is described to execute actions and simulate the process of fault generation and propagation. As a result, fault paths that impact components and functions can be obtained.

Related People



Chetan V. Mutha, Ph.D.
t 202.481.9958
cmutha@ktslaw.com