

Novel Bio-Inspired Self-Repair Algorithm for Evolvable Fault Tolerant Hardware Systems

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ABSTRACT

This paper investigates and presents a novel self-repair algorithm, based on a prokaryotic bio-inspired artificial model, for implementing evolvable self-healing bio-inspired systems. The key feature of the model is that system reliability can be increased with only a minimal amount of hardware overhead. It also offers a bio-inspired compression/decompression technique that exploits the intimate relationship between different genes. Distributed DNA, highly dynamic and optimized genome redundancy and optimized self-repair characteristics (using block and cell elimination) are some of the other advantages of the proposed model.

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