

Optimizing Prompt/Contextual Engineering Facilitation of Internal Computation Strategies for Enhanced AI Data Center Resiliency

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Abstract

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Abstract:

The surge in Artificial Intelligence (AI) Data Centers (DCs) being instantiated is accompanied by a dramatic uptick in the buttressing Strategic/Critical Infrastructure (SCI) needed. Increasingly, the hyperscalers behind these AIDC are taking responsibility for their own SCI. Ironically, the AIDC is both reliant upon this SCI, but is also starting to contribute towards its Condition Monitoring (CM) and Early Fault Detection (EFD) via AI-facilitated automated anomaly detection pipelines for CM/EFD. Interestingly, generation of the corpus of test images (containing sample anomalies to be detected), for conducting training on instances of these AI image analysis models, turns out to be somewhat non-trivial given issues of, among others, training data bias, prompt ambiguity, token interpretation variability, latent space sensitivity, and AI hallucination. Moreover, it turns out that Prompt Engineering (PE) can impact the involved Context Engineering (CE) forays, which can segue to, in some cases, spurious results. This paper explores a suitable counterpoising that is not only somewhat effective in facilitating the generation of acceptable results but also lends toward the desired phenomenon of grokking for advancing towards the envisioned large-scale more robust automated anomaly detection pipeline for CM/EFD.

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