

Peer Review

Review of: "Decoding Complexity: CHPDA – Intelligent Pattern Exploration with a Context-Aware Hybrid Pattern Detection Algorithm"

Prof.Dr. Alaa Farhan¹

1. University of Technology – Iraq, Iraq

Based on the document, here are enhancement suggestions:

- 1. Multilingual Support:** The current implementation has limited multilingual capabilities, which restricts its effectiveness in diverse linguistic contexts. Future work should focus on expanding language support to improve global adoption.
- 2. Integration with DSPM Tools:** Integrate Data Security and Privacy Management (DSPM) tools to improve compliance and scalability.
- 3. Regular Pattern Updates:** The system requires ongoing updates to regex patterns to remain effective. Implement a mechanism for more dynamic and automated pattern updates.
- 4. Address Hardware Constraints of Hyperscan:** While Hyperscan offers superior performance, it has hardware restrictions. Future development could explore ways to mitigate these constraints for broader deployment.
- 5. Balancing Precision and Recall:** The threshold for confidence scores can be dynamically adjusted to balance precision and recall, allowing users to fine-tune the detection pipeline according to their specific needs.
- 6. Memory Usage for Complex Patterns:** The SET mechanism in RE2 optimizes multi-pattern matching but has some limitations, such as increased memory usage for complex patterns. Future optimizations could focus on reducing the memory footprint.

Declarations

Potential competing interests: No potential competing interests to declare.