

Peer Review

Review of: "DRC-Coder: Automated DRC Checker Code Generation Using LLM Autonomous Agent"

Yuxiang Zhao¹

1. Peking University, China

This paper proposes a novel approach for generating DRV checking code. By employing prompt engineering on a large language model, the method produces the corresponding code, and the authors compare its performance with commercial analysis reports generated by commercial tools. Experimental results show that this approach achieves high accuracy in detecting DRVs for standard cells.

However, the reviewer has several concerns regarding the details presented:

1. The authors claim that this new method can be applied to next-generation technology nodes. Yet, in the experiments, the NVcell dataset used is for nodes below 3nm. It remains unclear whether this code-generation approach can be extended to other nodes, such as 7nm. Specifically, can the DRC-coder, after prompt engineering on 3nm, still generate correct DRC verification code for 7nm standard cells within only a few iterations? The authors need to include experimental results demonstrating the general applicability of their method to DRC tasks across diverse technology nodes.
2. If the code generated by the DRC-coder fails the DRC code evaluation, the system returns and attempts regeneration. Does this process involve modifying the prompt, supplying the model with additional knowledge, or letting the DRC-coder autonomously fix its own bugs? The authors should offer a detailed explanation of how this regeneration procedure is implemented within the paper.
3. According to the experiments, the average code generation time for the DRC-coder is approximately 210 seconds. In contrast, GPT-01—which presumably has more advanced reasoning capabilities—often exhibits faster generation speeds. Meanwhile, the experimental

results indicate that, on average, only 2.3 iterations are required to generate correct code. The reviewer is keen to know how the overall process time is distributed across each step. The authors are encouraged to provide a breakdown of the time consumed at each stage in their experiments.

Declarations

Potential competing interests: No potential competing interests to declare.