View Reviews

Paper ID
4304

Paper Title
RefleXGen:The unexamined code is not worth using

Track Name
ICASSP 2025 Main Tracks

Reviewer #1

Questions

2. Importance/Relevance
3. Of sufficient interest

5. Originality/Novelty
3. Moderately original; provides limited new insights or understanding

6. Justification of Originality/Novelty Score (required)
This paper introduced RefleXGen, an innovative method that significantly enhances the security of code generated by large language models (LLMs) without the need for model fine-tuning or the creation of specialized security datasets.

7. Theoretical Development
3. Probably correct; provides limited new insights or understanding

9. Experimental Validation
3. Limited but convincing

11. Clarity of Presentation
2. Difficult to read

12. Justification of Clarity of Presentation Score (required if score is 1 or 2).
The specific procedure for UpdateRAG in Equation 5 is not provided, making it difficult for readers to understand the work in the paper.

13. Reference to Prior Work
3. References adequate

15. Overall evaluation of this paper
3. Marginal accept

16. Justification of Overall evaluation of this paper (required)
1. The symbols appearing in Equation 4, such as fb0, are not explained.
2. In Figure 1, the two components "② Knowledge-Driven Security Feedback" and "③ Defect Fixing and Knowledge Integration" do not have clearly marked operational steps, leaving readers uncertain about which parts of Step 2 correspond to Knowledge-Driven Security Feedback and which to Defect Fixing and Knowledge

Integration. Additionally, the figure mentions a "cyclical process of secure code production," which is hard to locate.
3. The font size of "RefleXGen" in Figure 1 is too large.
4. The evaluation criteria used in the experiments are unclear; for instance, the phrase "that also meet security standards" lacks an explanation of how these security standards are met.

Reviewer #2

Questions

2. Importance/Relevance

3. Of sufficient interest

5. Originality/Novelty

3. Moderately original; provides limited new insights or understanding

6. Justification of Originality/Novelty Score (required)

This paper has moderate originality because it applies self-reflection and retrieval techniques to improve code security. While this approach is useful, it builds on existing methods instead of introducing entirely new ideas. The novelty mainly lies in combining self-reflection with retrieval to guide secure code generation. This combination adds value, but similar security-focused methods are already common in this field. The paper contributes to ongoing research, but its impact on originality is limited.

7. Theoretical Development

3. Probably correct; provides limited new insights or understanding

9. Experimental Validation

3. Limited but convincing

11. Clarity of Presentation

3. Clear enough

13. Reference to Prior Work

3. References adequate

15. Overall evaluation of this paper

3. Marginal accept

16. Justification of Overall evaluation of this paper (required)

This paper is a marginal accept because it provides a practical improvement to code security using known methods. The approach combines self-reflection with retrieval techniques, which enhances security but does not introduce groundbreaking concepts. The methodology is clear and shows some effectiveness, but it lacks novelty and depth. The paper contributes to incremental advancements in secure code generation, making it a useful but modest addition to the field.

Reviewer #3

Questions

2. Importance/Relevance

3. Of sufficient interest

5. Originality/Novelty

3. Moderately original; provides limited new insights or understanding

6. Justification of Originality/Novelty Score (required)

Novelty

7. Theoretical Development

3. Probably correct; provides limited new insights or understanding

9. Experimental Validation

3. Limited but convincing

11. Clarity of Presentation

3. Clear enough

13. Reference to Prior Work

3. References adequate

15. Overall evaluation of this paper

3. Marginal accept

16. Justification of Overall evaluation of this paper (required)

This paper proposes a method RefleXGen that enhances code security by integrating Retrieval-Augmented Generation (RAG) techniques with guided selfreflection mechanisms inherent in LLMs.

20. Additional comments to author(s): (Required if no other justification comments have been provided above.)

This paper proposes a method RefleXGen that enhances code security by integrating Retrieval-Augmented Generation (RAG) techniques with guided selfreflection mechanisms inherent in LLMs. Following are my major concerns:

1. The motivation is not well written. How the author improved the existing work.

2. For Section I and II, the limitations of existing works are not well analyzed. The authors should clearly justify why their work outperforms.

3.Figure 2 is incomplete. Some of the letters are not legible.