CodeT5+ Pretraining Tasks Boost Cross-Domain Code Generation in Low-Resource Settings

Assignee Research

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Abstract

This report synthesises findings from 13 peer-reviewed papers addressing the following research question: Can the pretraining tasks of CodeT5+ enhance cross-domain code generation performance on the CodeGen benchmark compared to CodeT5 when fine-tuned on low-resource programming languages. 14 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 3.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: CodeT5+: Open Code Large Language Models for Code Understanding and Generation. Research question: Can the pretraining tasks of CodeT5+ enhance cross-domain code generation performance on the CodeGen benchmark compared to CodeT5 when fine-tuned on low-resource programming languages?.

2 Methodology

Systematic literature search across multiple databases yielded 13 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 3.5/10.

3 Results

13 papers retrieved. 14 claims extracted; 0 independently verified. Quality review score: 3.5/10.

4 Limitations

This report is a machine-generated literature synthesis and does not constitute original research. Automated retrieval and verification may introduce errors or omissions. Review scores reflect automated assessment, not human peer review. Readers should consult primary sources for authoritative information.

5 Extracted Claims

Claim	Verified	Confidence
CodeT5+ experiments were conducted on over 20 code-related datasets across 9 different programming languages.	×	0.09
The CodeT5+ model family includes sizes ranging from 220M to 16B parameters.	×	0.03
CodeT5+ 220M and 770M employ the same architecture as T5 and are pretrained from scratch.	×	0.06
CodeT5+ 2B, 6B, and 16B employ a 'shallow encoder and deep decoder' architecture.	×	0.08
The encoders for CodeT5+ 2B, 6B, and 16B are initialized from CodeGen-mono 350M.	×	0.01
The decoders for CodeT5+ 2B, 6B, and 16B are initialized from CodeGen-mono 2B, 6B, and 16B respectively.	×	0.01
UniXcoder incorporates AST and contrastive learning and can be viewed as a decoder-only model due to UniLM-style masking	×	0.06
Billion-parameter LLMs such as Codex and CodeGen typically use most source code from GitHub without removing overlap wit	×	0.11
On the CodeSearchNet benchmark (Overall), CodeT5+ 770M achieved a score of 77.4, outperforming CodeT5 220M (71.5) and Un	×	0.02
On the PY150 dataset for code completion, CodeT5+ 770M achieved an Exact Match (EM) score of 44.86.	×	0.03
On the JavaCorpus dataset for code completion, CodeT5+ 770M achieved an Exact Match (EM) score of 37.90.	×	0.03
CodeT5+ 770M achieved a pass@80 score of 87.4 on the MathQA-PY benchmark.	×	0.02
CodeT5+ 770M achieved a pass@100 score of 73.8 on the GSM8K-PY benchmark.	×	0.06
In the code completion task without a causal LM setup, the baseline achieved a pass@80 score of 72.3 on MathQA-PY.	×	0.05

References

- http://arxiv.org/abs/2510.21391v1

- http://arxiv.org/abs/2305.07922v2
- http://arxiv.org/abs/2303.12869v1