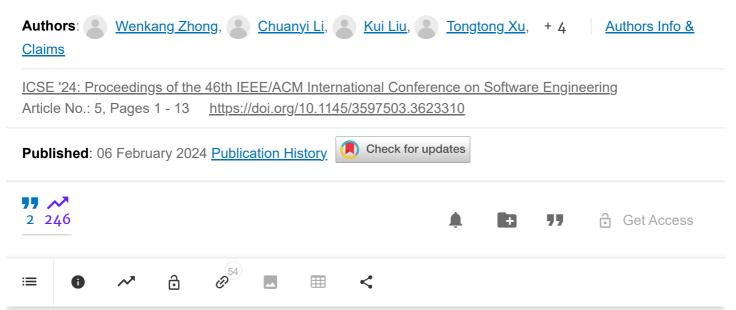


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# **Abstract**

To date, over 40 Automated Program Repair (APR) tools have been designed with varying bug-fixing strategies, which have been demonstrated to have complementary performance in terms of being effective for different bug classes. Intuitively, it should be feasible to improve the overall bug-fixing performance of APR via assembling existing tools. Unfortunately, simply invoking all available APR tools for a given bug can result in unacceptable costs on APR execution as well as on patch validation (via expensive testing). Therefore, while assembling existing tools is appealing, it requires an efficient strategy to reconcile the need to fix more bugs and the requirements for practicality. In light of this problem, we propose a Preference-based Ensemble Program Repair framework (P-EPR), which seeks to effectively rank APR tools for repairing different bugs. P-EPR is the first non-learning-based APR ensemble method that is novel in its exploitation of repair patterns as a major source of knowledge for ranking APR tools and





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# Recommendations

# Practical program repair via bytecode mutation

ISSTA 2019: Proceedings of the 28th ACM SIGSOFT International Symposium on Software Testing and Analysis

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