

Artificial Intelligence Techniques to Improve Software Testing

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Abstract:

We propose the following combination of AI techniques to improve the software testing process.

When a bug is found, a model-based diagnosis (MBD) algorithm is used to propose a set of candidate diagnoses.

Then, a planning algorithm is used to suggest further test steps to identify the correct diagnosis. The tester performs these tests, provide additional information to the MBD algorithm for pruning incorrect candidate diagnoses.

This iterative process continues until the correct diagnosis is returned.

Several planning techniques are proposed to minimize the actions the tester performs in this process until the correct diagnosis is returned.