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Scaling up visualization of regression test results from PinDown

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Test automation inevitably leads to huge amounts of test results. To stay on top of the results from millions of test case executions, test managers and test engineers need some support – otherwise the test effectiveness will deteriorate. One approach to support decision making based on automated testing is to design actionable visualization approaches [1].

During the TESTOMAT project, we have worked on using a city metaphor to present results from software testing, inspired by pioneering work by Wettel and Lanza [4]. Our work started with a MSc thesis student at KTH Royal Institute of Technology developing visualization prototypes in the Unity3D game engine. The test data we used to try our visualization concept come from running Verifyter's tool PinDown, a tool that automatically debugs source code based on output from automated regression testing [3].

During TESTOMAT Sprint 2, the visualization prototypes have evolved into a tool that enables visual analytics, defined as "the science of analytical reasoning facilitated by interactive visual interfaces" [5]. The visualization tool had no problems scaling to realistic amounts of regression test data (in our pilot study we used 6 months). We have conducted a pilot evaluation with data from one of Verifyter's customers, and two engineers on the customer side evaluated the results. Based on the engineers feedback, we believe that a tool presenting test results as a cityscape would be a valuable addition to Verifyter's current PinDown offering. The latest results have been peer-reviewed and are to be presented at the Design and Verification Conference Europe 2018 in October [1]. In future TESTOMAT sprints, we plan to further assess the scaling of the game engine-based visualization approach, hopefully to years' worth of regression test data.

References

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