

EXTENSIONS W.R.T. THE ICST'15 PAPER

This paper is a revised and extended version of our paper ‘JSEFT: Automated JavaScript Unit Test Generation’, which appeared in the *Proceedings of the International Conference on Software Testing, Verification and Validation (ICST 2015)*.

The main extensions include:

- Improving the approach as follows:
 1. Revising the function state reduction technique (explained in Section 3.3.1); The approach diagram (Figure 2), and the function state reduction algorithm (Algorithm 1) are revised to reflect changes to the state reduction technique. In accordance with the revised approach diagram, we restructured the approach (Section 3) into three sub-sections: (1) maximizing function coverage, (2) extracting DOM and JavaScript function states, and (3) mutation analysis.
- Extending the evaluation section as follows:
 1. Comparing the fault finding capability obtained by (1) using the state reduction mechanism, and (2) including the whole application’s state.
 2. Comparing the number of assertions in the following scenarios: (1) capturing the whole application’s state, (2) with enabling the state reduction technique only, and (3) with applying the state reduction as well as the mutation-based oracle generation algorithm;
- Adding one more research question to the evaluation section (RQ3 in Section 4) to discuss the results of the new comparisons.
- The new results are presented in Section 4.3. The comparative results are presented in Table II and Table III.
- Adding a discussion section (Section 5).
- A more elaborate coverage of related work (Section 6).
- Furthermore, we made a full pass over the text, leading to many improvements throughout the paper, including various changes that originated from discussions at the ICST’15 conference and other venues where this work was presented.

While difficult to measure objectively, we believe this accounts for an extension of over 30% – a common guideline used for journal versions of papers that are based on conference papers.