Cover Letter

Dear EIC, AE, and reviewers,

Thank you very much for considering our submission in the reviewing process!

This submission entitled “***JSimpo: Structural Deobfuscation of JavaScript Programs***” presents our research efforts on structural deobfuscation for security.

It has been widely accepted that security is difficult and increasingly critical for software engineering communities. Thus, TOSEM has this special section on security and SE. Thus, this paper can attract the interest of the ICSE community. We believe the content of this submission is important to the computing field and could gain general interests of the magazine readers for the following reasons.

* We point out structural deobfuscation as an important security problem. Recent studies show that 71% JS malware samples employ obfuscation techniques. These obfuscated JS malware substantially reduce the effectiveness of malware detection. Besides malware detection, JavaScript deobfuscation also helps reduce the workload of code review, which is also important in security.
* We propose JSimpo, an effective approach for structural deobfuscation with two techniques, slice symbolic execution and dynamic code execution, based on two basic requirements of obfuscation techniques, respectively.
* We conduct a comprehensive evaluation of demonstrating JSimpo’s effectiveness, efficiency, and generalization ability for structural deobfuscation, boosting the average structural similarity to 78.41% (from 39.33%) between obfuscated programs and their original programs, whereas the best of the state-of-the-art/practice deobfuscators can achieve only 62.64%.

Thanks for your great efforts on this submission!

Best regards,

Tianyu, Ding, Ying, and Tao