

On the Feasibility of Automated Prediction of Bug and Non-Bug Issues

Steffen Herbold¹, Alexander Trautsch², Fabian Trautsch³

Abstract: We summarize the article *On the feasibility of automated prediction of bug and non-bug issues* [HTT20], which was published in the Empirical Software Engineering in 2020.

Keywords: issue type prediction; bug issues; recommendation systems; empirical software engineering

1 Overview

The article “On the feasibility of automated prediction of bug and non-bug issues” published in Empirical Software Engineering in 2020 considers the application of machine learning for the automated classification of issue types, e.g., for research purposes or as a recommendation system [HTT20]. Issue tracking systems are used to track and describe tasks in the development process, e.g., requested feature improvements or reported bugs. However, past research has shown that the reported issue types often do not match the description of the issue. Within our work, we evaluate the state of the art of issue type prediction system can accurately identify bugs. We also investigate if manually specified knowledge can improve such systems.

2 Results

While we found that manually specified knowledge about contents is not useful, respecting structural aspects can be valuable. Our experiments show that issue type prediction system can be trained based on large amounts of unvalidated data and still be sufficiently accurate to be useful. Overall, the misclassifications of the automated system are comparable to the misclassifications made by developers.

¹ Karlsruher Institut für Technologie, Institute AIFB, Kaiserstr. 89, 76133 Karlsruhe, Deutschland steffen.herbold@kit.edu

² Georg-August-Universität Göttingen, Institute für Informatik, Goldschmidtstr. 7, 37077 Göttingen, Deutschland alexander.trautsch@cs.uni-goettingen.de

³ Georg-August-Universität Göttingen, Institute für Informatik, Goldschmidtstr. 7, 37077 Göttingen, Deutschland fabian.trautsch@cs.uni-goettingen.de

Literatur

- [HTT20] Herbold, S.; Trautsch, A.; Trautsch, F.: On the feasibility of automated prediction of bug and non-bug issues. *Empirical Software Engineering* 25/6, S. 5333–5369, Sep. 2020, URL: <https://doi.org/10.1007/s10664-020-09885-w>.