

**“PerformoBot, please help me!” –**  
**Chatbot-supported Performance Evaluation**  
**Extended Abstract**

Samuel Beck<sup>1</sup>, Lasse Merz<sup>1</sup>, Christoph Zorn<sup>1</sup>, Fabian Beck<sup>2</sup>, Leonel Merino<sup>1</sup>,  
Dušan Okanović<sup>1</sup> and André van Hoorn<sup>1</sup>

<sup>1</sup> University of Stuttgart, Germany

<sup>2</sup> University Duisburg-Essen, Germany

okanovic@iste.uni-stuttgart.de

Often, the evaluation of the performance of software systems is carried out by software developers or quality assurance engineers, and not by software performance experts. The evaluation includes choosing appropriate tools and methods, setting them up, executing them, and collecting performance data. After that, the data has to be analyzed. All of these steps require a lot of expertise. People inexperienced in performance evaluation are often not aware of the most appropriate method for their system or appropriate parameter settings for a method. Furthermore, even when the data is collected, it can be challenging to make sense of this data and to identify performance issues. Although there exist approaches that aim to simplify this process [1, 2], they are limited to either choosing the underlying approach or result interpretation.

Chatbots have revolutionized how customers interact with businesses in recent years and it is expected that by 2020 an average person will converse more often with them than with their spouse [3]. Chatbots facilitate human-like conversations in order to answer questions, provide information, and trigger other services. They rely on machine learning as well as natural language processing (NLP). This popularity of chatbots is also gaining traction in professional domains such as software development, where chatbots support developers in their daily work [4].

Our aim is to provide users with means of executing performance evaluation tasks without expert knowledge of the required methods and tools. Users interact with a chatbot using natural language to specify their performance concerns and receive reports tailored to those concerns. We present how a chatbot, called PerformoBot, can help users execute performance evaluation tasks. In this talk, we focus specifically on how this chatbot helps users set-up load tests to evaluate the performance of a given service endpoint. During the conversation with the user, PerformoBot is able to recognize the user’s intents, i.e., typical performance concerns, to gather the required parameters for the evaluation. Based on the given specification, an actual configuration for a particular tool chosen by the chatbot is created and executed. The data collected from this execution is processed by the Vizard framework [5] to produce a report. The chatbot presents the generated report to the user, who receives a concrete answer to the stated concern, supported by appropriate visualizations and a generated textual report that explains the collected data.

In the talk, we will also present the results of a user study that we plan to conduct for evaluating the applicability of PerformoBot. An online study consisting of a performance evaluation task and a complementary survey has been designed to collect a wide range of impressions from both software performance experts and novice users. The task features an everyday performance evaluation scenario that participants can solve with the assistance of PerformoBot. With the information that we expect to gain in the study and the corresponding survey, we then can investigate the suitability of our chatbot to create load tests. In addition, we plan to analyze bot-user-interactions and strategies that might arise during the study. We have a special focus on the different experience levels of users and on examining the potential educational effects of PerformoBot on the participants.

## References

- [1] J. Walter, A. van Hoorn, H. Koziolok, D. Okanović, S. Kounev. “Asking ‘What?’, Automating the ‘How?’: The Vision of Declarative Performance Engineering.” 7th ACM/SPEC on International Conference on Performance Engineering (ICPE). pp. 91-94. 2016.
- [2] J. Walter, A. van Hoorn, S. Kounev: “Automated and Adaptable Decision Support for Software Performance Engineering”. VALUETOOLS 2017. pp. 66-73. 2017.
- [3] H. P. Levy: “Gartner’s Top 10 Strategic Predictions for 2017 and Beyond: Surviving the Storm Winds of Digital Disruption”. <https://gtnr.it/2z428RS>. 2016. (accessed on: 14.08.2019)
- [4] E. Shihab, S. Wagner: “Proceedings of the 1st International Workshop on Bots in Software Engineering”. 2019.
- [5] D. Okanović, A. van Hoorn, C. Zorn, F. Beck, V. Ferme, J. Walter: “Concern-driven Reporting of Software Performance Analysis Results”, 10th International Conference on Performance Engineering (ICPE). pp. 1-4. 2019.