Informatik - Sonderkolloquium

How Do Professional Developers Comprehend Software?

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Research in program comprehension has considerably evolved over the past two decades. However, only little is known about how developers practice program comprehension under time and project pressure, and which methods and tools proposed by researchers are used in industry. This paper reports on an observational study of 28 professional developers from seven companies, investigating how developers comprehend software. In particular we focus on the strategies followed, information needed, and tools used.

We found that developers put themselves in the role of end users by inspecting user interfaces. They try to avoid program comprehension, and employ recurring, structured comprehension strategies depending on work context. Further, we found that standards and experience facilitate comprehension. Program comprehension was considered a subtask of other maintenance tasks rather than a task by itself. We also found that face-to-face communication is preferred to documentation.

Overall, our results show a gap between program comprehension research and practice as we did not observe any use of state of the art comprehension tools and developers seem to be unaware of them. Our findings call for further careful analysis and for reconsidering research agendas.

Tobias Röhm is a researcher and PhD student at the applied software engineering group at TU Munich. His research interests are in program comprehension and software evolution, researching the impact and exploitation of user information and communication between developers and users. He is also interested in empirical methods and application of semantic web and ML techniques in software engineering.

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