Einladung zum Vortrag

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Abstract Interpretation Methods for Error Detection in C/C++ Program Code

According to existing research, large open-source programs contain up to 0.7 errors per 1000 code lines. This may lead to serious consequences when systems do not work as expected. Hence, the problem of software quality assurance is receiving much attention nowadays. Two categories of methods for error detection are thereby common: Dynamic methods like software testing execute a program in order to detect errors. By this, the consideration is limited to particular execution traces only. In contrast, static methods e.g. relying on model checking or formal verification use the source code for error detection and guarantee a full coverage. In this talk, a static error detection scheme called abstract interpretation and originally introduced by Patrick Cousot is presented. The idea is to assume an abstract interpretation of all possible values during the consideration of the program. While such a scheme is relatively easy to implement, it suffers from a huge computational complexity as well as from a large number of false positives. In the talk, recent improvements to deal with these weaknesses are presented.

Biografie

Mikhail Glukhikh graduated from Saint Petersburg State Polytechnical University in 2001 with a master degree in Informational Technologies. In 2007, he received his PhD thesis from the same university. From 1999-2000, Dr. Glukhikh worked at the Kodeks Software Development Center, and, from 2001-2002, at the Efremov Research Institute of Electrophysical Apparatus. Since 2002, he was a senior developer at the Digitek Labs in the Computer System and Software Engineering Department. From 2004 to 2007, he additionally served as senior lecturer in this department and, since 2007, he is an associate professor. In 2013, he assumed a one-year position as scientific collaborator at the Clausthal University of Technology. Dr. Glukhikh’s research interests include code analysis, code verification, and code reliability estimation methods.

Mikhail Glukhikh wurde von Rolf Drechsler eingeladen.
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