University of Freiburg 79085 Freiburg

Press release

Quality assurance – done automatically

Freiburg research team once more wins the gold medal at the International Software Verification Competition

Automatic quality assurance for software, carried out by a machine which reads the program line by line and analyses the software's behavior so that every error is found – Professor **Andreas Podelski** together with Dr. **Matthias Heizmann** and Dr. **Daniel Dietsch** of the University of Freiburg have developed an algorithm which will enable just that in the future. With this "Ultimate Automizer" project, the Freiburg research team has won the International Competition on Software Verification for a second time.

The algorithm uses a novel procedure to check each component in a given software independently. When the procedure stops, the algorithm either reports any errors or guarantees the absence of errors. For the competition, the algorithm was tested on several thousand programs - and was shown to be faster and more reliable than the approaches of the 29 other teams.

Big companies like Airbus employ experts to ensure the reliability of their software. "Yet it is the small and medium-sized enterprises in high-tech industries which really need automatic quality management in the long term. They do not have the highly-specialized employees to conduct manual testing," Podelski explains.

The Freiburg researchers won the Competition on Software Verification just last year with their "Ultimate Automizer" project. It is based on a software analysis approach which Podelski and his working group have been

University of Freiburg

Rectorate

Public Relations

Fahnenbergplatz
79085 Freiburg

Contact:
Sonja Seidel
Phone: 0761 / 203 - 6801
sonja.seidel@pr.uni-freiburg.de
www.pr.uni-freiburg.de

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developing since 2009. The research from more than 40 Bachelor's, Master's, and Doctoral theses has contributed to the project.

Some companies in the Freiburg region have already begun to use the algorithm. In the future, the researchers are aiming to better integrate the automatic quality management into the industrial development processes. The goal is to tailor the algorithm precisely to the different standards of software quality.

The prize will be awarded 27 April at the TACAS conference in Uppsala, Sweden.

Contact:
Professor Dr. Andreas Podelski
Institute of Informatics
University of Freiburg
Phone: 0761/203-8241
Email: podelski@informatik.uni-freiburg.de

The University of Freiburg achieves top positions in all university rankings. Its research, teaching, and continuing education have received prestigious awards in nationwide competitions. 25,000 students from 100 nations are enrolled in 197 degree programs. Around 6,000 teachers and administrative employees put in their effort every day – and experience that family friendliness, equal opportunity, and environmental protection really mean something here.

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