

Partnership led by IBM promotes new methodology to drastically shorten software development cycle

European commission grants € 2,3 mln for speeding up research - IBM Research in Haifa, Israel to partner with six European academic and industrial institutions to develop new methodology

Brussels and Haifa, Israel - 25 January 2001 - A consortium led by the IBM Research Lab in Haifa, Israel was recently granted 2,3 million € (ca. 2 mln. USD) by the European Commission for research on ways to drastically shorten the software development cycle. A promising approach for the automation of software testing is being investigated by the AGEDIS consortium. This approach can significantly reduce the most painstaking cycle of all software development efforts--testing. Testing currently comprises between 30% and 70% of all software development projects.

"Today, software development is 10% inspiration and 90% perspiration", says Alan Hartman, project leader at the IBM Haifa Research Lab. "Using this new methodology and tools, the perspiration time might be cut down dramatically, enabling software developers and testers to become far more productive and reduce the time-to-market, while maintaining high standards of software quality."

"This AGEDIS project is of extreme importance for the long-term competitiveness and productivity of the European software industry", says Renato Campo, Project Officer in the unit Technologies and Engineering for Software Systems and Services (TESS) of the IST (Information Society Technologies) Fifth Framework Programme of the European Commission. "This innovative methodology promises a new standard in software reliability."

The IBM Research Laboratory in Haifa (HRL) will lead the project with their expertise, and will be joined by the Oxford University Computing Laboratory(UK), the Verimag Laboratory at Universite Joseph Fournier in Grenoble, France Telecom R&D, the IBM Development Laboratory in Hursley Park (UK), Intrasoft International (Luxembourg and Greece) and imbus GmbH (Germany).

AGEDIS was born from the genius of Alan Hartman and Ken Nagin, project leaders at the IBM Research Lab in Haifa (HRL). The AGEDIS technology will include a model-based, coverage-driven, automated testing method, and the necessary tools for the implementation of the automated method. Hartman and HRL will manage and coordinate the AGEDIS project. AGEDIS will be used in the development process for the IBM MQSeries products. The predecessor of AGEDIS the GOTCHA-TCBeans testing tools (<http://www.haifa.il.ibm.com/projects/verification/gtcb/>) is currently being used in the development and testing of the WCCD product in Raleigh, the UDDI product from Austin, CS390 file system testing in Poughkeepsie, and others. The test generation engine, GOTCHA, was originally used in a hardware test generation project called Genevieve, which was also sponsored by the European Commission, and involved the Haifa Research Laboratory in a consortium with ST Microelectronics and LEDA which is now a subsidiary of Synopsis.

The results of the first round of AGEDIS experiments (using GOTCHA-TCBeans and TGV, a similar tool from Verimag will be ready in May 2001, the prototype AGEDIS tools will be ready for use on the IBM MQSeries in May 2002, and the final production version of the AGEDIS toolset is set for October 2003. Progress can be tracked on the official AGEDIS web site at <http://www.agedis.de>.

The AGEDIS project will enhance the efficiency of software testing by replacing manually generated, error prone tests with test scripts generated automatically from the program's specifications. It will feature a new methodology and tool set for the automation of software testing in general, with an emphasis on distributed component-based software systems.

"The AGEDIS technology approach", Hartman explains "is similar to a standardized school exam generator. It creates, distributes, corrects, and analyzes an exam that can be given at the same time anywhere in the world." In the AGEDIS methodology, a model of the software is created (from the class syllabus). Then a test suite, based on coverage criteria and testing constraints, is automatically generated (the questions and answers to the exam). A component-based execution engine that encapsulates knowledge of the model then executes the automated test suite and its translation to the software components under test (exam distribution, supervision, and grading). This approach is particularly suited to component-based software whose interfaces are clearly specified.

The tool set will include a software modeling language, a compiler for the language, a coverage-driven test generator, a component-based test execution engine, and productivity and feedback tools. These, Hartman says continuing with the school exam metaphor, "are the tools that analyze the exam results, and point out which syllabus sections were not covered, which questions had the most incorrect responses, etc."

The IBM Haifa Research Laboratory (HRL) is a subsidiary of IBM Israel. The Verification Technologies department develops Formal Verification and advanced Test Program Generation techniques, and is world renown for the development of RuleBase and Genesys, IBM's proprietary model checking and test generation tools. The Verification Technologies department, together with the Systems Applications Development department at the Haifa Laboratory, jointly developed the automated software testing system known as GOTCHA-TCBeans. The system is now under the development of the newly formed Software Testing and Verification group, managed by Orit Edelstein. The system is being deployed in several IBM Development Laboratories under the sponsorship of the IBM Software Testing Community Leadership.

For more information please contact:

Alan Hartman

eMail: hartman@il.ibm.com

<http://www.agedis.de/>

<http://www.haifa.il.ibm.com/projects/verification/gtcb/>