TECHNOLOGY

Domain Specific Test Design Automation

OVERVIEW

Today's software programs are becoming more and more complex - a fact which also makes them more error prone. Modern applications are written using functional programming - a single expression is used, which is executed by evaluating the expression. A spreadsheet is a good example of functional programming: in a spreadsheet, one can specify the value of each cell in terms of the values of other cells. The focus is on what is to be computed, not how it should be computed. (See http://www.haskell.org/aboutHaskell.html for more information.)

Although tools exist for finding errors in programs written in functional language, these programs are obsolete relative to the complexity of today's software. Thus, software is generated that frequently fails in that it does not generate what it purports to generate. In addition, errors are generally not found as a result of an internal quality control, but instead are detected by the end user.

Researchers in the Department of Materials Science and Engineering have developed an algorithm which automatically generates a diagnostic test for computer software. The technology, called HOTTest. Unlike current tools, HOTTest reads the implicit domain specific properties (the description of what the software will do) of database applications (the software) and then automatically, without user intervention, develops reliable test models that are used to generate test cases. This technology automates what is currently a tedious and time consuming manual process which is inherently prone to errors.

The HOTTest prototype generated reliable test models for software developed using a representative computer language (HaskellDB). These automatically generated test models were then fed into the TestMaster program to generate test cases and the test cases were used to test the application employing Winrunner.

For more information, contact the Office of Technology Commercialization at 201-405-3947 or at otc@umd.edu

CONTACT INFO

UM Ventures
0134 Lee Building
7809 Regents Drive
College Park, MD 20742
Email: umdtechtransfer@umd.edu
Phone: (301) 405-3947 | Fax: (301) 314-9502

Additional Information

INSTITUTION

University of Maryland, College Park

PATENT STATUS

Issued

LICENSE STATUS

Available for exclusive or non-exclusive license

CATEGORIES

- Information Technology

EXTERNAL RESOURCES

- US Patent 7,392,509

IS-2003-085