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Scientists cash in on fixing spreadsheet errors

Spreadsheets are a tool commonly used by businesses to track everything from payroll to accounts receivable. However, experts claim, there could be erroneous code, programming or formulae in spreadsheets that is costing businesses billions of dollars.

A newly-founded company in the U.S. has developed technology to reduce mistakes in spreadsheets, and potentially rake in some profits in the process. Dubbed "Goal-directed Debugging of Spreadsheets" -- "GoalDebug" for short - the technology aims to provide nonspecialized programmers with the means to detect and correct programming mistakes simply by selecting from a short-list of change suggestions.

In the U.S. alone, it has been estimated that about 100 million spreadsheets are created annually, which in turn might be managed by up to 60 million users. As most of these end-users tend to be nontechnical staff with limited computer software programming knowledge, spreadsheets are notoriously prone to errors, warned Martin Erwig, an associate professor of computer science at Oregon State University in the U.S., and one of the creators of GoalDebug.

"Most users of spreadsheets are overconfident, they believe that the data is correct," he said. "But it has been observed that up to 90 percent of the spreadsheets being used have nontrivial errors in them. In fact, one auditor has said he never inspected a single spreadsheet during his entire career that was completely accurate."

"Spreadsheet debugging problems are huge; we believe there will be a significant demand for these products -- a large market," Erwig said. "We can't provide a dollar figure at this time, but our company is quite optimistic about this product."

The impact of spreadsheet errors could range from a few dollars misplaced in a personal travel budget, to delayed paychecks, to significant financial misrepresentations of budgets and stocks, which could affect many people, Erwig said.

For GoalDebug to correct a spreadsheet, it requires the user to first identify a suspicious-looking result, and plug in a more accurate figure. By identifying common errors made by humans, the program then suggests several programming mistakes that might have created the error, and what the correct approach might be.

Citing a recent study that found that software engineers spend up to 80 percent of their time testing and debugging programs, Erwig expects GoalDebug to appeal to nontechnical spreadsheet users as it allows them to identify and repair errors by looking at a short list of possible problems instead of combing through hundreds or thousands of cells.

GoalDebug will be taken to market through a spin-off company called i5Logic, which was founded by Erwig and two colleagues last year. The current research prototype has been designed to work with Microsoft Excel; however, Erwig expects the program's underlying analysis techniques to apply to other spreadsheet systems as well.