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New Program Exterminates End-User Bugs

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"It's an incredible scandal that the tools used today for debugging are the same ones available in the 1940s," says Carnegie Mellon's Brad Myers. "It's time that new tools made their way into all programming environments so end-user and professional programmers won't have to suffer the way we still suffer now."

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Exterminating bugs that infest spreadsheets and Internet calculators is the goal of an Oregon State University (OSU) project funded by the National Science Foundation (NSF).

Getting the bugs out should come as good news to the increasing millions who use online spreadsheets to calculate interest rates, amortizations, investment returns, and scores of other numerical values.

Don't Bug Me - I'm Not a Programmer

Not a programmer? Think again.

If you have ever created a simple Web application that grabs data -- such as current weather conditions -- from another site, or automates a repetitive task in your e-mail client or word processor, you've programmed an "end-user application."

"Experts estimate the number of so-called 'end-user programmers' to reach 55 million by 2005," said NSF spokesperson David Hart. "The same experts suggest that nearly half of the programs created by these end-users have nontrivial bugs."

But end-users shouldn't have to be bugged by bugs, says OSU computer science professor Margaret Burnett.

"For end-user programmers, software engineering isn't their job and it shouldn't be," said Burnett, who also directs the End Users Shaping Effective Software (EUSES) project.

"Programming is a means to an end. End-users consider themselves successful when they've won new business through their Web site or completed a budget analysis," Burnett explained. "The problem, in part, is motivating them and focusing their attention on their programming errors amid other matters."

Using EUSES

Teaching end-users to nab bugs on their own is the primary goal of EUSES, Burnett said.

"We've learned to stay out of their way -- give them hints to explore, and they'll get more done," Burnett said.

One recent demonstration showed that by learning independently, spreadsheet users "caught and corrected more errors and had a better idea of how well they had done," NSF's Hart told NewsFactor.

A similar EUSES interface developed by collaborators Andrew Ko and Brad Myers of Carnegie Mellon University helped end-user programmers find bugs eight times faster and make 40 percent more progress in the programming task.

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Inside the End User

Other EUSES collaborators observe end-user programmers in their natural environs, watching as they debug simple Web applications and learning why they choose to use (or not use) available tools.

"Our first principle in EUSES is 'do no harm,'" Burnett told NewsFactor. "No matter what fancy features we add, we don't want to get in the way," she emphasized. "For experienced users, we want to encourage good testing habits and support quality control. We want to provide the user with a willing collaborator in the system."

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