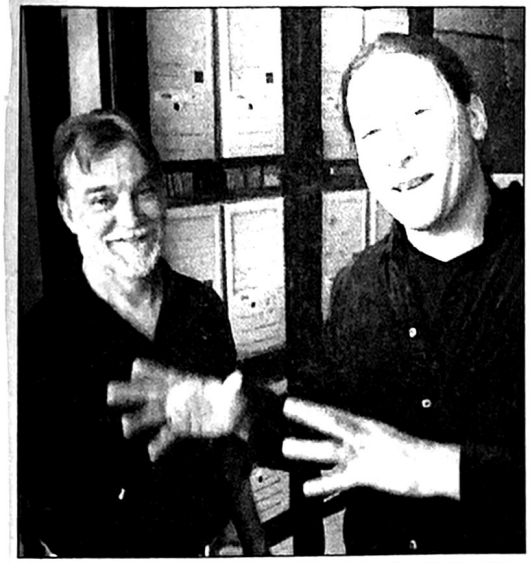

STEVE MALONE / NEWS-PRESS

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Scientists work on defense against cyber-terrorism

■ RESEARCH

Continued from Page B1

during business or battle. And the software protection is designed to recognize newfangled viruses, worms or other types of attacks that have yet to be invented.

It is able to do so because it can recognize individual characteristics of past worms, viruses or hacker behavior that may be incorporated in a new method.

If there is irregular use or activity, the program sounds an alarm, from an obtrusive message or reaction to a subtle FYI. Like a car alarm, people can adjust its sensitivity and the manner in which it reacts.

A prototype of the team's software protection system was recently posted on the Web at **www.cs.ucsb.edu/~rsg/STAT**. People can download it for free to help protect themselves or their local systems from the severe damage that comes from viruses, worms or hacking directly into a computer.

The system is a work in progress, however, and the team plans to fine-tune it over time.

The group hopes that one day the program will be installed on computer networks throughout the Information Superhighway. One problem locally could be tied to another across the globe to indicate a pattern of assaults, such as a flood of e-mail to a Web site with the intent of crippling the site.

This type of software also can be adapted to everyday use, to recognize irregularity in stock trading, for example.

For now, however, its use is being expanded from the research lab to the entire university. The research also has expanded within the military, from war games simulations on the U.S. Navy Pacific fleet to installation at various Air Force bases.

UCSB scienti
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cyber-terrorism

Defense funds help researchers develop computer protection

Santa Barbara
News-Press
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By ANN GRIFFITH
NEWS-PRESS STAFF WRITER
e-mail: agriffith@newspress.com

A team of UCSB scientists is developing software with money from the U.S. Department of Defense that could eventually protect some of the nation's critical military computer systems from terrorists.

Their program could one day be implemented at private and government networks around the globe.

"I'm not the only person who thinks the next terrorist threat is probably going to be a cyber-terrorist threat," said Richard Kemmerer, who has been devising computer security systems for 25 years, starting when what is now called the Internet was in its infancy. His work has been funded by various defense grants since 1997. "The biggest surprise is that we haven't had a cyber-terrorist attack yet."

He and two other UCSB researchers received their latest funding in May — $4.3 million courtesy of the U.S. Army.

The computer science professors predict that a new era of computer hacking is on the horizon. Instead of individuals inflicting acts of mischief — temporarily shutting down the CNN and the White House Web sites, for example — they expect that teams of experts will plot destruction to operations controlled by computers. These include nuclear reactors, dams, military operations and transportation systems.

"Once upon a time you would steal a credit card, or you would steal e-mail," said Giovanni Vigna, who is working with Mr. Kemmerer on the project. "But now it could be altering a nuclear reactor, opening a dam to flood a community or getting into the transportation system and crashing a shipment of chemicals into a train, like a bomb."

Professor Kevin Almeroth also has joined the team to lend his expertise in networks as the group expands the use of its software.

The team's computer protection system is different from others in that it can be updated to recognize newly engineered threats without having to shut down a computer system and lose valuable time

Please see **RESEARCH** *on* **B4**