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UA's Developments In Cyber Security Improve Society

Recent advances associated with the Internet have brought about issues concerning cyber security, and the College has formed an interdisciplinary research team to specifically address a few key areas in security informatics. UA's *CARE* Research & Development Laboratory is a major component in this research as it utilizes leading edge technologies to provide advances in traffic safety, law enforcement and homeland security.

The CRDL, part of UA's computer science department, was established in 1982. Today the lab consists of 20 faculty, students and professional staff. The original product of CRDL was *CARE*, a data analysis software package for use in problem identification and evaluation. It has been used primarily in the area of traffic safety and has been implemented in 10 states.

In the last several years, CRDL has broadened its focus to include law enforcement and homeland security. Working with law enforcement, UA's *CARE* Research & Development Laboratory developed e-Citation, an electronic citation application and ticketing process. Developed in 2003, this program uses the Internet to transmit tickets directly to the Administrative Office of Courts in Montgomery, eliminating data entry of the tickets by the court clerks.

Phase one of the e-Citation program took place at the Alabama Department of Transportation trucking weigh station in Heflin, Ala. In phase two, the Motor Carrier Safety Unit troopers worked with laptops and driver's license scanners in their cars to go mobile with e-Citation. The project went to four counties, then seven and then statewide with all motor carrier troopers. Phase three added the municipal courts and was piloted with Tuscaloosa and University of Alabama police departments.

The latest phase in the program is currently underway and it includes expansion to all state troopers throughout the state. Several municipalities are beginning to enroll as well. As part of the statewide expansion effort, the CRDL was awarded a \$500,000 federal grant.

"This new technology provides us the opportunity to perform citation tasks with increased safety as well as speed and accuracy," said Tuscaloosa Police Chief Ken Swindle.

Another area of cyber security that CRDL addressed concerned the development of a system to help with identification for law enforcement. In 2003, UA's CRDL developed the Law Enforcement Tactical System, or LETS, which is a secure, Web-based search engine that allows law enforcement and criminal justice agencies to pull millions of records, titles, registrations and photos from the Internet to make necessary identifications. The program gives officers tools, using wireless laptops in their patrol vehicles, to see beyond the boundaries of their jurisdictions.

"We wanted to develop a new way to produce and deliver criminal justice information directly to the point of use," explained Dr. David Brown, computer science professor and director of development of the CRDL. "Officers in the field can find out who is driving a car and can make a positive identification of people who do not have their driver's license in their possession. In addition, the officers can be alerted if the person they have stopped has warrants out for their arrest."

As a result of the success of the LETS program, a \$1 million grant from the U.S. Department of Homeland Security was awarded to CRDL in order to develop a similar system to increase the information technology projects in fighting terrorism.

The College's cyber security research team is not only fulfilling the University's mission of research and service, but also dramatically improving the safety and security of the citizens of Alabama.

COMPUTER SCIENTISTS DEVELOP SECURITY PROGRAM (Side Story)

Dr. Marcus Brown, associate professor of computer science, and Joey Rogers, Brown's former graduate student, invented another security program that aids in cyber security. The pair developed a neural network, a type of computer program which "learns" by example. The program uses the precise time that each key is pressed and released by its user to develop a pattern. If measured precisely, each person's typing pattern is saved as a "fingerprint" unique to them.

"If you typed my name at a computer running my invention, the computer would be able to determine that you are not me," Brown said.

This program could provide a way for companies to protect themselves and their clients from unauthorized access to sensitive information.

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