

THE COOLEST* RESEARCH YOU NEVER KNEW EXISTED

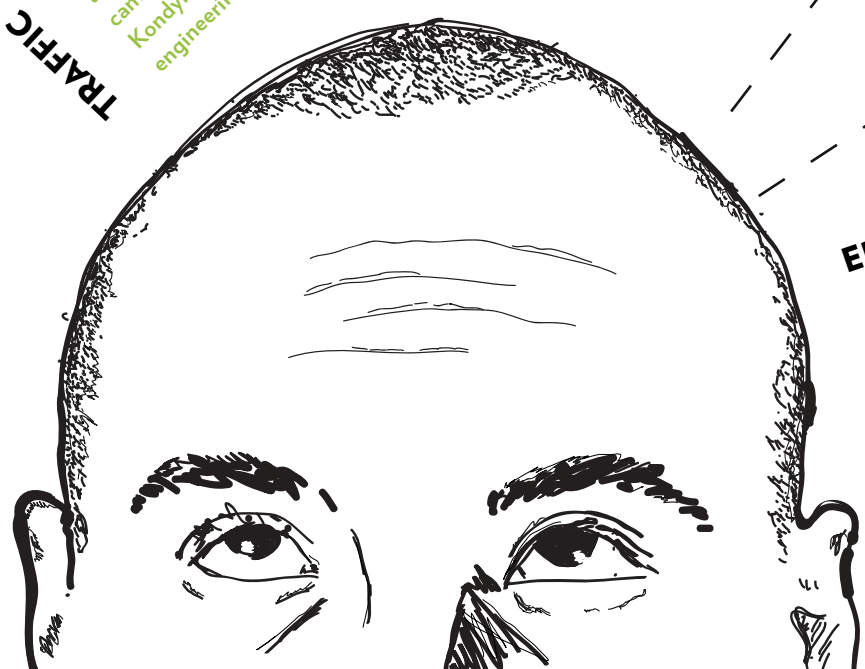
BY MARILEE GRIFFIN

* gator engineering

THE FLORIDA ENGINEER

This research could change the way you drive. It aims to minimize traffic congestion on the freeway by identifying the behaviors that trigger it. This research is unique because it focuses on the driver's behavior from inside the vehicle. A car equipped with cameras monitors a driver's reactions and surroundings while the driver changes lanes, passes, merges, etc. Since each driver's characteristics can influence whether traffic streams are cooperative or competitive, each driver is asked to "think out loud" while they drive on the freeway, to capture their reasoning.

The Cool Factor? "This research bridges the gap between individual drivers' actions and characteristics with the significant problem of congestion." / **Alexandra Kondyli, Ph.D. student, civil and coastal engineering**



ASEDRA is a software enhancing the effectiveness of the typically low-quality nuclear radiation detectors used every day to protect U.S. airports and borders. By sifting through the noisy, low-resolution signals produced by these inexpensive detectors, ASEDRA makes findings just as reliable as high-end detectors costing 10 times as much. ASEDRA has been patented, and is being commercially developed.

The Cool Factor? "This product would greatly enhance the security of the United States against terrorist attacks." / **Glenn Sjoden, associate professor, nuclear and radiological engineering**

EPILEPSY IMAGING

SECOND CHINA

III

You can visit Second China while playing Second Life (an Internet-based 3-D virtual world where you can “live” as a virtual version of yourself). Second China is a government-funded project helping prepare travelers to visit China. Different scenarios — like a teahouse, office or taxi — are set up to test language skills and cultural know-how. A companion Web site helps you navigate Second China by teaching these things. So when you arrive for a virtual meeting, you’ll know to respond when Lu the receptionist says “Ni hao.”

The Cool Factor? “We can use the power of 3-D and what people normally associate with video games to teach culture.” / Paul Fishwick, professor, computer and information science and engineering



THE TERMINATOR PROJECT

IV

Inspired by how metal “healed” itself in the Terminator movies, researchers have developed a fully functioning, tin-based prototype that can “recover” when damaged. A high-strength metal is reinforced with shape memory alloy wires — a special type of metal that can return to its original shape after becoming deformed. This process closes cracks in the metal, which is heated until liquid beads of sweat form at the crack’s surface. The liquid covers the crack, which “heals” as it cools. The research could be applied to NASA vehicles, which are used in remote locations where it is difficult to fix broken parts.

The Cool Factor? “Metals and structural materials are considered to be inanimate. However, when you watch the healing process, this metal object seems to come alive. Maybe the idea of a cyborg doesn’t seem so crazy after all!” / Michele Manuel, assistant professor, materials science and engineering

V

A new technique that has been successful on rats creates a map of the brain’s activity by vibrating it with laser light, revealing the part of the brain involved in an epileptic seizure. The technology, which is being developed for humans, will function like a hat — making it particularly useful for children, who pose a problem for MRI scans because they can’t remain still for long periods of time.

The Cool Factor? “Lasers have never been used before to generate an ultrasound. Children will really benefit from this research.” / Huabei Jiang, professor, biomedical engineering

