

Technology to identify insects OSU experts' goal

A team of experts at Oregon State University (OSU) at Corvallis hopes to bring the powerful tools of artificial intelligence to the world of ecology and environmental protection, with a new \$1.7 million grant from the National Science Foundation to create technology that can identify insects.

This application of "machine learning" could expand the frontiers of a computer science field known as pattern recognition, such as the systems that now use computers to identify fingerprints.

Fingerprints are easy, however, compared to identifying insects -- flexible, three-dimensional objects that come in many shapes, sizes, colors and configurations. And there are a lot of them. In Oregon, a square meter of soil can contain from 100,000 to 300,000 individuals representing two to 200 species.

But if the challenge is huge, so is the potential environmental payoff, said OSU.

"When we perfect a low-cost, efficient method to use computers to monitor insect populations, it will revolutionize water quality monitoring, which will be one of the first applications," said Tom Dieterich, an OSU professor of computer science. "And in forest management, ecologists are hampered by lack of a way to easily measure insect populations and biodiversity. We might be able to speed up that process about 1,000 times."

What is needed is a system that can collect, manipulate, photograph and identify small insects, quite quickly, accurately and in large numbers. And a long-term goal, the re-

searchers say, is to create machine and computer systems that can be "retrained" for application to different sets of insects or a broad range of other pattern recognition problems.

One of the first insects the scientists will try to identify is stonefly larvae, which are known to be a sensitive indicator of stream health and water quality.

Changes in water quality over time can be tracked by monitoring changes in the composition of aquatic insect communities, providing more important information than a check on water at any one point in time.

Researchers have known for some time the value of such monitoring, but the cost of collecting, counting and identifying the insects with highly-trained and often scarce experts is prohibitive.

A computer system that could do so would be of enormous value, even if only for this one application. And the broad fields of stream and terrestrial ecology, agriculture, forestry and many other areas could ultimately provide a myriad of uses for technology that could identify small, irregular objects quickly and accurately.

To expand the field of pattern recognition, scientists hope for advances in two areas -- the use of "feature" dictionaries in which a computer can find, identify and use thousands of visual features from an object to determine its identity; and "relational appearance" methods, in which computers figure out what objects might look like under a wide variety of viewing angles and lighting conditions. The con-

cept of "machine learning" or artificial intelligence implies that the computer systems, by themselves, will help decide which features and which views can be of the most help in making accurate identifications.

There may be fewer than a dozen taxonomic specialists in all of North America with the expertise to perform all of the needed analyses, the researchers said.

OSU is in an ideal position for this type of interdisciplinary research, the scientists say, because it can combine the skills of experts in a variety of computer science, natural resource and engineering fields.

Commercial spin-offs and new start-up companies using the technology that emerges from this research are also likely, he said.

I.V. Volunteer Firefighters to the Rescue

- Sunday, Sept. 28 *2:47 p.m., motor vehicle accident, Redwood Hwy. and Reeves Creek Road. *3:23 p.m., grass fire, 19700 block Redwood Hwy. Tuesday, Sept. 30 *7:53 a.m., motor vehicle accident, 33000 block Redwood Hwy. *9:23 a.m., medical standby, 681 Caves Hwy. *1:02 p.m., motor vehicle accident, mile post 34.5 Redwood Hwy. Wednesday, Oct. 1 *9:04 a.m., electrical fire, 400 block Walters Drive. *5:44 p.m., medical assist, 6400 block Deer Creek Road *9:59 p.m., medical assist, 400 block S. Redwood Hwy. *10:10 p.m., structure fire, 100 block Forest Creek Road. Thursday, Oct. 2 *12:11 a.m., medical assist, 200 block E. River St. *4:56 a.m., vehicle fire, 100 block School St. *8:08 a.m., public assist, 100 block Forest Creek *2:09 p.m., illegal burn, 200 block Schumacher *2:47 p.m., motor vehicle accident, Redwood Hwy. and Reeves Creek Road. *6:20 p.m., medical assist, 600 block E. River St. *9:10 a.m., medical assist, 400 block Aquarias Way. Saturday, Oct. 4 *8:34 a.m., motor vehicle accident, 4200 block Takilma Road *4:42 p.m., medical assist, 400 block Addison Lane *5:21 p.m., smoke investigation, Reeves Creek Road and Lakeshore Drive *7:22 p.m. medical assist, 200 block Forest Creek *7:33 p.m., medical assist, 300 block Caves Hwy. Sunday, Oct. 5 *11:31 a.m., medical assist, 472 O'Brien Road *5:16 p.m., explosion, 300 block Cricket Lane *8:06 p.m., grass fire, 1100 block Lone Mountain Road Monday, Oct. 6 *1:55 a.m., medical assist, 200 block Ollis Road No. 57.

GP man shares secret to making the perfect taco

A new invention called the Taco Bender has been specially created to provide an easier and more efficient method of frying the folded tortillas. Its unique design prevents the tortillas from collapsing or closing and there fore frying in that form. Additionally, it allows individuals to make taco shells as fast as they can fry them.

The inventor, Larry Walker, from Grants Pass, began developing the idea in June. Frustrated from having numerous shells collapse as he fried them, Walker conceived the Taco Bender for every taco lover's benefit. This original idea is now being made available for licensing to manufacturers interested in new product development, especially in the taco utensils industry. Walker is hoping to have Taco Bender in full production and available to the public in the near future.

Florida-based Invention Technologies, Inc. is handling the publicity and public relations for Taco Bender.

Advertisement for 'Do it Best' featuring a cartoon of a deer reading a newspaper and a sign that says 'I would like to rent a Cement Mixer and Post Hole Digger. See, It worked.' The address is 434 Caves Highway, 592-3540.

Advertisement for H.D. PATTON JR CONSTRUCTION. Features a photo of a house and text: '*1,488 total sq. ft., \$125,000. *1,248 sq. ft. finished / 240 sq. ft. (unfinished) rec room 455 Addison'.

Crossword Puzzle provided by Oregon Caves Chevron. Includes a crossword grid and a list of clues for ACROSS, DOWN, and other categories. The ad also promotes 'NOW OPEN SUN. - THURS. 6 A.M. - 9 P.M. FRI. AND SAT. 6 A.M. - 11 P.M. 592-3080'.

Elementary Schools Menu Sponsored by 'Illinois Valley News'. Lists menu items for Thursday, Friday, and Wednesday, including 'Cheese stix, cheeseburger, pepperoni pizza, super sub sandwich, fiesta salad'.

Table of TV listings for Sunday Morning/Afternoon and October 12, 2003. Columns include time slots (6:00 to 5:30) and program titles such as 'The Simpsons', 'NFL Football', 'The Tonight Show', etc.