

UC department digitizes how we move

# RESEARCHERS MELD ROBOTS, HUMANS



SUN-STAR PHOTO BY GEORGE MACDONALD

UC Merced engineering professor Marcelo Kallmann, left, stands by as computer science graduate student Mentar Mahmudi, right, fits his colleague, Oktar Ozgen, with a new motion-capturing exoskeleton Thursday afternoon at the university.

## Grant funds exploration of human movements in differing environments.

By VICTOR A. PATTON  
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A high-tech collection of sensors and gadgets that could've stepped from the world of Xbox, PlayStation and Nintendo could move UC Merced researchers closer to capturing complex motions of the human body on a computer.

Three professors at the school recently received a \$250,000 National Science

Foundation grant to begin buying equipment for the university's Cognitive Sensorium and Visualization Facility, where researchers will be able to study ways to implement humanlike intelligence in computers — maybe even helping computers see the world the way people do.

The researchers have already bought a basic motion-capture exoskeleton — a body suit that contains several sensors that replicate the motions of its wearer into a computer and data gloves that capture human hand movements.

By the beginning of next year, they

plan to buy an eye-tracking headset able to record the vision and complex movements of the human eye. The system will also include an 8-foot-high by 15-foot-long "Power Wall" — a high-resolution computerized screen which can be programmed to represent any interactive setting — a sweltering desert sun or a cool Arctic glacier, allowing the wearer of the body suit to act as if he were in that climate.

All the equipment will be integrated

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By CORINNE RE  
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Jose Franco, was also arrested in May. He is facing criminal charges for failing to intervene when the alleged abuse occurred and has been released on \$50,000 bail.

Jose Franco told police that his wife told him the boy's injuries were self-inflicted, and that he believed her, says the report. Jose Franco's appointed attorney, Ernest Spokes, said his client was working two jobs at the time the abuse allegedly occurred. "He was barely home," said Spokes. "When you leave at 5 a.m. and don't come home until after 10, there's a lot that can happen that you don't know about." Spokes added that Martha Franco often dressed the boy in long-sleeved shirts and long pants to hide his bruises from her husband.

Jose Franco was working as a cook at TravelCenters of America in Santa Nella and at Ryan's Place restaurant in Los Banos at the time of his arrest. Martha Franco, who was unemployed, stayed home with their children.

The Francos also have three daughters, ages 8, 6 and 2 years old. Officials have said the girls did not appear to have been abused. According to the report, Martha Franco told police she did not abuse them because, unlike her son, the girls were "quiet." They were placed under the care of Merced County Child Welfare Services after their parents' arrests.

Attorneys in the case say it's still uncertain whether a plea agreement might be struck, or whether the case will go to trial.

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SAN FRANCISCO

**S.F. project could remake city's skyline**

A regional transportation commission picked a Connecticut architecture firm Thursday to design a new bus and train terminal that has been described as the "Grand Central Station of the West" and an adjacent skyscraper that would be the tallest building this side of Chicago.

New Haven-based Pelli Clarke Pelli Architects beat two other finalists for the right to move forward with multi-billion-dollar project that promises to remake San Francisco's downtown and skyline, the Transbay Joint Powers Authority announced.

The firm's winning bid includes topping the new Transbay Terminal with a 5.4-acre park and building a 1,200-foot-tall, obelisk-shaped office tower next door to raise

cash and customers for the mass transit complex. Its partner in the deal, the Hines development firm, offered to pay \$350 million for the land under the building.

A jury of planning and design experts recommended the commission select the Pelli Clarke proposal, saying it best fit San Francisco and had the most potential of fulfilling the city's goals for the neighborhood that the new structures would anchor.

**ROBOTICS**

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together to help researchers record a variety of human movements into a computer — and apply those movements in several ways, such as a virtual computer character. "We can do an experience where you as a user will see something on the screen and become immersed in a virtual environment," said Marcelo Kallmann, a robotics professor in UC Merced's School of Engineering.

Kallmann said the system will be helpful to his research because he is particularly interested in expanding the artificial intelligence of computers to include humanlike movements — research which could eventually be applied to the field of robotics, "You are doing tasks, and we can capture how you react to these tasks or how you (perform) your motions to specifically those tasks," Kallmann explained.

Although the professors in-

involved in acquiring the grant already have their own ideas for how they will use their new gear, they said the system will be available to any UC Merced professors who need to study human motion to forward their research.

Shawn Newsam, a professor in UC Merced's School of Engineering, said he is planning to use the system and the eye-tracking equipment to explore ways to improve a computer's ability to visually recognize certain images, especially ones from satellites. By better understanding how a human's eyes recognize certain images, Newsam hopes to eventually apply that information to a computer's intelligence. "The one thing that an eye-tracker will allow you to do is to at least observe how someone views an image — the idea of what they look at and what order," Newsam said. "Getting a computer to understand an image is really difficult for computers, even though its really easy for hu-

mans." Teenie Matlock, a cognitive science professor, plans to use the system to track eye movement in simulated scenarios. "The human visual system is actually really good at tracking motion and figuring out what objects are," Matlock said. "But with a computer vision program, it's a whole different ball game."

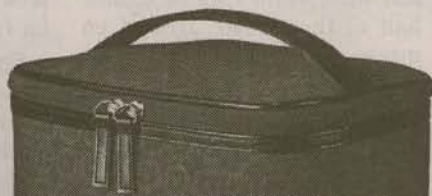
Newsam said UC Merced researchers will begin assembling the entire system in early 2008 and possibly will begin actual research projects by the summer. He said the professors are currently in talks with university administrators about where the system will be located on campus.

He also envisions opportunities for members of the public and students to experience the system. "While it is going to function as a research lab, it can still be used to give demonstrations," Newsam said.

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It outlaws drivers under the age of 18 to operate any and all electronic devices which, of course, includes cell phones. July 2008 is over ten months from now.

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**Gift With Purchase**