

## USC News

### ISI to Play Role in Genetic Initiative

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**A team from the USC Viterbi School's Information Sciences Institute will structure data allowing scientists to test health hypotheses.**

**By Eric Mankin**

Jose-Luis Ambite and Ewa Deelman, research faculty members of the USC Viterbi School's department of computer science at the Information Sciences Institute, will be part of a four-year, \$31 million initiative aimed at understanding how genetic variation influences the risk of diabetes, heart disease, cancer and other common diseases.

The National Human Genome Research Institute, one of the National Institutes of Health, announced the study July 17. Study centers in Hawaii, North Carolina, Tennessee and Washington State will carry on the research, with their work coordinated by a separate center at Rutgers University in New Jersey.

Ambite and Deelman will provide information technology expertise to the Rutgers Center, which also will receive funding from the National Institute of Mental Health. The combined funding will total some \$1.5 million over the study period.

Deelman, a project leader in the ISI Center for Grid Technologies, will lead the effort to develop the project's cyber infrastructure and provide researchers with Web-based tools to easily query data managed by the center. She also will create software tools to analyze the data accessible through the center.

The center will use computational resources both at Rutgers and USC/ISI. Deelman plans to use her previous work developing the National Science Foundation-funded Pegasus Workflow Management System to guide the new center's data ingestion process.

Pegasus-WMS, developed at ISI in collaboration with the Condor team at the University of Wisconsin, Madison has been shown to provide reliable and efficient workflow management for a number of complex applications in a variety of domains ranging from astronomy and earthquake science to gravitational-wave physics.

Ambite, a senior research scientist at ISI, will lead the data integration efforts aimed at gathering consistent data. This is not an easy task, he said.

"Access to raw data is not enough," Ambite said. "Data from different studies must be integrated so that concepts and values coming from different studies are faithfully represented."

Ambite said that the resulting "integrated view" of the data facilitates new discoveries by allowing investigators to reach and combine data in novel, previously unfeasible ways.



Information technology specialists Ewa Deelman and Jose-Luis Ambite

Photo/Eric Mankin