



LONI Delivering on Promise of Attracting Federal Research Funding

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When LONI—the Louisiana Optical Network Initiative—was initially proposed, one of its fundamental selling points was its potential to attract federal research dollars that Louisiana institutions might otherwise have had to forego. Now, barely into LONI's first phase as a working reality in our state, the initiative has already played a direct role in attracting to our state over \$20 million from such federal funding agencies as the National Institute for Health and the National Science Foundation.

"These grants are further affirmation of the wisdom of Governor Blanco's support for the creation and long-term maintenance of the Louisiana Optical Network," said Commissioner of Higher Education Joseph Savoie. "Federal funding at this level is economic development in its purest form, and that doesn't even count the enormous economic potential of the future applications of this research. Moreover, because of the research capability that LONI will continue to afford our universities, we can expect much more federal funding in the future."

The largest of the project grants thus far was officially announced in mid-October: a \$16.9 million award over five years from the National Institutes of Health for the INBRE (Idea Network of Biomedical Research Excellence) project, a joint effort of LSU- Baton Rouge, LSU Health Sciences Center, the University of Louisiana at Monroe, Southern University-Baton Rouge, Louisiana Tech and LSU-Shreveport. INBRE projects are aimed at promoting the development, coordination, and sharing of research resources and expertise that will expand the research opportunities and increase the number of competitive investigators in states with developing research infrastructures. Louisiana's enhanced research capability resulting from LONI, while not the initial impetus for the grant, was a significant factor in the award decision.

According to the grant's principal investigator Harold Silverman, interim vice chancellor for research and graduate studies at LSU, the INBRE project will establish a multi-disciplinary research network with a scientific focus that will build and strengthen the lead and partner institutions.

Another principal INBRE project researcher is Bill Wischusen, LSU professor of biological sciences. Wischusen said the goal of INBRE is to increase research competitiveness in Louisiana by fostering mentoring and resource sharing between the

state's larger research-oriented campuses and its more undergraduate-oriented regional universities.

"It's one thing to say you'll share resources, but it's quite another to accomplish it with only three-megabytes of connectivity," Wischusen said. That's where LONI's capacious data-handling bandwidth enters the picture. Through the LONI network, campuses can connect with ten gigabytes of bandwidth, which makes it possible for researchers hundreds of miles apart to visualize research data in real time. Computer simulations, for example, on one campus can be experienced virtually simultaneously at campuses in the opposite corner of the state.

"The ability to visualize data remotely and in real time is extremely valuable," said Wischusen. "It's cost prohibitive to have all the same research resources at every campus. And we can't expect to compete on a national scale unless we bring all of our resources together."

Closely related to the INBRE project is the "Viz Tangibles" project, involving researchers at LSU, Southern, UNO and the LSU Health Sciences Center. The National Science Foundation (NSF) has provided \$400,000 to this promising effort, which seeks to design and deploy new kinds of physical interaction devices and associated software systems to simplify strengthen, and extend computer visualizations, especially in collaborative environment like those promoted by the INBRE project.

Brygg Ullmer, who leads the Tangible Visualization Group at LSU's Center For Computation and Technology, explained that the Viz Tangibles project centers essentially on the creation of physical devices which allow researchers working at different campuses to work together on a given project in real time, as though they were at the same physical location.

"While limited resources make it impossible for every campus to have a scientific visualization supercomputer, the Viz Tangibles project, coupled with the network capacity afforded by LONI, is the next best thing," said Ullmer. "We'll be able to have both hands at the control, so to speak."

Among the research projects likely to be enhanced by the one-two punch of viz-tangibles and LONI are investigations into eye diseases, environmental science and the impact of hurricanes on coastal erosion.

Sumeet Dua, professor of computer science at Louisiana Tech, is the principal investigator on still another LONI-related project, the Distributed Data integration and mining project, which has earned an initial National Science Foundation grant of \$70,000. The project, a collaboration of Louisiana Tech, UL-Lafayette, LSU, UNO, Children's Hospital and LSU Health Sciences Center, seeks to assemble a multi-disciplinary and multi-institutional team of computer and information scientists, engineers, biologists and clinical researchers to develop a data repository of Louisiana bio-medical-related data. The goal is to enhance computer-science-based research in

Louisiana and beyond. The data-repository and a data mining computing engine driving it (ready state-wide access to which would be made possible by LONI) would include biomedical, biological and clinical data ranging from free-text notes and instrument readings to microscope images.

"LONI and multi-disciplinary computing research in a multi-institutional setting were key ingredients in the grant proposal," said Dua. "LONI was evidence of both our ability to work collaboratively among campuses and the state's willingness to significantly invest in and support university research."

"LONI will have impacts on research and development in this state in ways that we cannot even envision at this early juncture," said Les Guice, Louisiana Tech Vice President of Research and Development and chairman of the LONI Management Council. "These projects are leading indicators of the high level of success that our faculty are already having in securing multi-institutional research grants. It is particularly gratifying to see the tremendous collaboration that is already occurring between researchers at our LONI institutions as they begin to capitalize on this new information expressway."