

October 18, 2013 | By Jan Zverina

## **SDSC, Indiana University, University of Texas to Build Science Gateway Service Platform**

### **NSF-funded project to give researchers greater access to web-based portals and services**

The National Science Foundation (NSF) has awarded a \$5 million grant for a collaborative five-year project under which researchers at the San Diego Supercomputer Center (SDSC) at the University of California, San Diego will help develop and build a Science Gateway Platform (SciGaP) as a service to advance scientific discovery by providing researchers improved access to a variety of hosted or cloud services.



The project will be led by Indiana University's (IU) Marlon Pierce and Suresh Marru, with IU's Science Gateways Group. Science Gateway group leaders Mark Miller and Amit Majumdar will lead SDSC's participation in the project, joined by Borries Demeler from The University of Texas Health

Science Center at San Antonio (UTHSCSA).

Science gateways are virtual environments that provide researchers with web-based access to tools, applications, high performance computing resources and data collections to further their scientific studies. Through science gateways, researchers can access top-tier resources, including applications running on a supercomputer, remote instruments such as a telescope or electron microscope, or curated data collections.

Science gateways have dramatically increased cyberinfrastructure usage and accessibility for scientists and educators around the world. To date, for example, SDSC's CIPRES Science Gateway has supported more than 7,000 users globally and has led to more than 600 publications of phylogenetic studies involving species in every branch of the Tree of Life.

Science gateways also support training of the next generation of scientists, as they are frequently used for graduate-level and undergraduate-level curriculum delivery and even allow advanced students at the high school levels to study and solve “real-world” problems as part of their training.

“Gateways dramatically accelerate scientific discovery by making it easy for researchers to access high-end resources, and provide a means to collaborate and share results,” said Mark Miller, lead of the Next Generation Tools for Biology group at SDSC and founder of the [CIPRES science gateway](#). (CIPRES stands for CyberInfrastructure for Phylogenetic Research.)

Amit Majumdar, director of the [Scientific Computing Applications](#) group at SDSC and lead of the [Neuroscience Gateway](#), added: “With the SciGaP project we hope to enable a large number of existing and new science gateways from various domain sciences.”

One of the challenging aspects of building science gateways is creating the infrastructure to make efficient use of shared resources. These services are costly to construct, and require expertise that not every potential gate creator has. The SciGaP project will create a set of hosted infrastructure services that gateway providers can easily adopt to build new gateways. These services will provide the basic features that any gateway requires, such as tools to connect high-performance computers and data resources across the country. “This grant will help us realize our vision of science gateways as a multi-faceted hosted service,” said IU’s Marru.

SciGaP services will significantly lower the development overhead for communities that wish to create new science gateways, allowing gateway creators to focus on developing new capabilities that are unique to an individual gateway’s scientific community, such as increasing the number of features available, improving user interaction and support, and enhancing outreach efforts.

“This is really about gateway software development being better integrated with the operations of gateway services,” said IU’s Pierce. “We are not just putting a software package on a website for people to download and then hoping for the best. Our team integrates gateway software developers and gateway operators with shared responsibilities.”

SciGaP software will be developed under the Apache Airavata project, providing training for a new generation of cyberinfrastructure developers in open source, open governance development. SciGap will provide all gateway developers with the opportunity to make publicly documented contributions to gateway software and to bridge the gap between academic and non-academic development.

For more information on the SciGap project, please visit the [SciGap website](#).

---

UC San Diego's [Studio Ten 300](#) offers radio and television connections for media interviews with our faculty, which can be coordinated via [studio@ucsd.edu](mailto:studio@ucsd.edu). To connect with a UC San Diego faculty expert on relevant issues and trending news stories, visit <https://ucsdnews.ucsd.edu/media-resources/faculty-experts>.