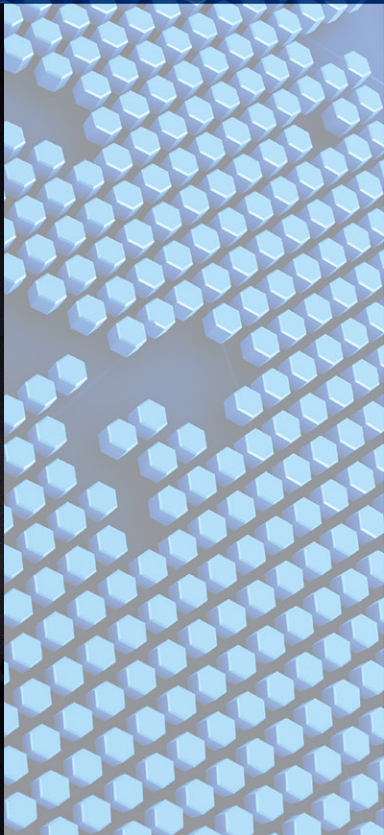


UC@
SDSC

Collaborate Innovate Educate
For UC and the State of California



SAN DIEGO SUPERCOMPUTER CENTER at UC SAN DIEGO

Assessing climate change
Improving diagnoses and treatment of brain disorders
Predicting the impact of massive earthquakes
Ushering in a new era in personalized medicine

These and other societal goals are creating massive computational and data-oriented challenges for researchers at the University of California (UC) and beyond.

Confronting these urgent challenges requires collaboration among researchers with the scientific vision and technological skill to reach innovative solutions for now and the future—with high-performance computing and big data as essential ingredients.

The San Diego Supercomputer Center (SDSC), a national leader in cyberinfrastructure technology and expertise, is committed to working with researchers across the UC system to help solve the complex issues of our times. Innovation and collaboration are central to SDSC's mission—and with rapid innovations occurring in high-performance computing and big data, education and training in these areas are also central to our mission.

SDSC's UC engagement strategy provides specific programs built around the following fundamental goals

Collaboration

Since opening its doors almost three decades ago, SDSC has conceived, nurtured, and raised multiple partnerships and collaborations with individuals, communities, and institutions, across a wide spectrum of disciplines and fields of study at UC and beyond. The resources, services and expertise provided by SDSC have been a tremendous magnet for computational and data-oriented scientists, with the Center now serving as a leader/co-leader/participant on research projects with more than 200 UC principal investigators.

UC-wide Collaborative Research Opportunity

SDSC experts interested in collaborating with UC researchers can apply for a CRO mini-grant to support collaborative work, leading to an extramural grant proposal.

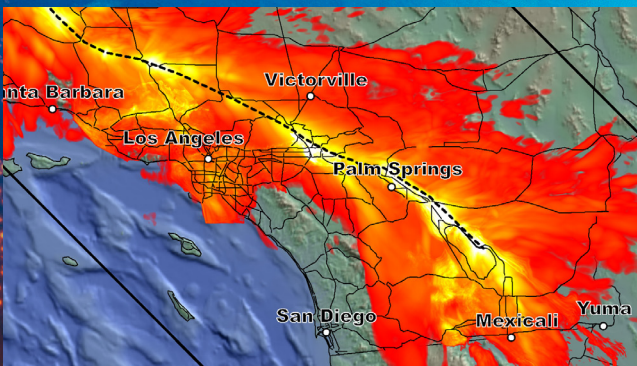
External Advisory Board

SDSC's UC External Advisory Committee serves as a focal point for counsel and support for multi-campus research collaborations across the UC system-wide, helping to foster and promote research, technological and educational initiatives of critical importance to SDSC, UC system-wide and the residents of California.



Innovation

Combined with its long pioneering history in computational science (aka the third paradigm), SDSC is also able to provide a crucial gateway for innovation in the fourth paradigm, built around the need to harness "big data" and the "data deluge." SDSC has committed itself to this cause and is focusing on developing technologies and infrastructure to help researchers make sense of all this data, by leveraging SDSC's deep expertise in large-scale systems, data management and data integration, data science workflows, data mining and analytics, robust software development, and more.



Education

A vital part of SDSC's guiding philosophy is the empowerment of science and engineering communities in the present, and the development of scientists, technologists and engineers in the next generation. SDSC offers hands-on training programs in high-performance computing and big data to UC students and researchers in the use of high-performance computing, data-intensive computing, and data analytics focusing on a variety of research disciplines, from neuroscience and geophysics to the humanities, arts and social sciences.

Technical Expertise

At the core of SDSC's innovation is its critical mass of experts who span numerous specialties in high performance computing, big data, and data science. SDSC experts are ready to partner with UC research collaborators and assist them in utilizing the significant computational, software, and data resources available for addressing complex research problems.

Access to High-Performance Computing via Comet

Comet, a new NSF-funded petascale supercomputer, is dedicated to the so-called "long tail of science". Among its capabilities is support for virtualization of HPC systems to allow users to install and execute custom software stacks.

Cyberinfrastructure, as Part of an Integrated Digital Infrastructure (IDI)

The Center's 19,000-square foot data center is available as a recharge-based regional colocation facility for the UC system. The SDSC data center hosts several leading-edge resources including:

TSCC—a data-intensive, high-performance computer featuring massive data analysis and preservation for UC researchers.

SDSC Cloud—an OpenStack-based cloud computing and object storage, with the latter offering north/south geographical replication, system administration services and data hosting, and cost-effective solutions for long-term data-sharing needs now mandated by federal agencies.

Sherlock Cloud—offering FISMA and HIPAA compliant, managed infrastructure focusing on a broad range of services, including analytics, case management, secure cloud hosting, and data management.

"Made in UC" Platform—a test system at SDSC with a variety of data science-related tools and technologies that are readily available for use, including the Hadoop software ecosystem, as well as UC-developed software such as the UCR Suite for time series analysis and AsterixDB.

Training Institutes, Workshops, and Short Courses

The SDSC Training Institutes provide UC students and researchers hands-on experience in high-performance computing and data analytics using some of the nation's most advanced computing platforms. These institutes will focus on HPC and data management and analytics for a variety of disciplines across the natural and social sciences, engineering, humanities, medicine, management, and education. Courses and workshops will be offered at SDSC, UC San Diego; on-site at another UC campus; and online. The short course format will be centered around hands-on training with the latest tools and technologies in HPC and big data.

Graduate Summer Fellowship

Graduate students from around UC are invited to apply to spend a summer working with an SDSC researcher. Faculty advisors from the home campus are invited for the symposium at the end of summer.



Working with SDSC Offers a Competitive Advantage

At SDSC, collaboration has been the key to our success. As a result, during our nearly three decade history, SDSC research revenues have exceeded \$1 billion, a level of sustained funding matched by few research units in the country. In perhaps the most competitive landscape for federal funding in the last two decades, SDSC's success rate on federal proposals is currently 44%, compared to a national average of roughly 15% for computer science and engineering proposals at the National Science Foundation. Collaborating with SDSC's team of outstanding researchers offers a competitive advantage, and leverage, for those seeking research grants, whether small or large.

For further information about SDSC, please visit our website at:
www.sdsc.edu

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