UC San Diego
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October 02, 2019 | By Jan Zverina

SDSC, UC San Diego Awarded Two NSF Convergence Accelerator Grants

Informatics and internet codifying awards total $2 million

Researchers at the San Diego Supercomputer Center at UC San Diego and UC San Diego School of Medicine have received two National Science Foundation (NSF) planning grants worth a combined $2 million under a new NSF initiative to invest in research collaborations between academia, industry, government and communities that enable capabilities beyond what is currently possible in either the private or public sectors.

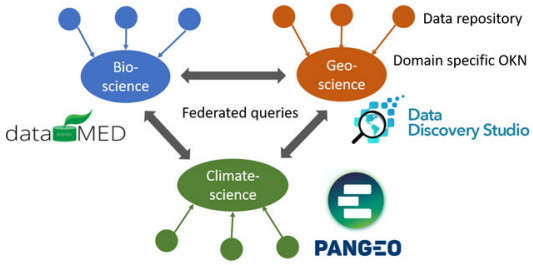

Image credit: Peter Rose, SDSC

Called Convergence Accelerator awards, the first set of grants has been awarded to research teams, according to a recent NSF release. These projects will evaluate how employers can use sophisticated artificial intelligence tools to connect with the workers they need, while seeking ways to develop the future U.S. workforce with the universities that will educate people and the companies that will employ them. A total of 43 new awards totaling $39 million will support projects across the country.

Both grants, which support one of NSF's 'Big Ideas' called Harnessing the Data Revolution, are focused on the area of Open Knowledge Networks, which pool many types of information and ideas so they can be accessed and leveraged to create new understanding. These networks have become important tools for many large organizations that are taking advantage of the current 'Big Data' revolution.

Informatics and KONQUER Collaboration

One of the NSF grants went to a principal investigator team from SDSC, UC San Diego, The University of Texas Health, and the National Center for Atmospheric Research (NCAR) for development of a search engine called KONQUER (Knowledge Open Network Queries for Research). KONQUER will let researchers obtain and integrate relevant data sets from multiple scientific domains. The Lamont-Doherty Earth Observatory and Columbia University are key collaborators in the grant, valued at $1 million for a period of nine months.

Lucila Ohno-Machado, Professor of Medicine, chair of the UC San Diego Health Department of Biomedical Informatics, founding faculty of the Halıcıoğlu Data Science Institute, as well as associate dean for informatics and technology at UC San Diego School of Medicine, is the Principal Investigator (PI). SDSC researchers Peter Rose and Ilya Zaslavsky are co-PIs, as are Hua Xu from UT Health and Joseph Hamman from NCAR.

The team includes partnerships with researchers from biomedical, social, geoscience, and climate science fields and integrates extensive expertise from data cyberinfrastructure efforts, including DataMed, a biomedical discovery index previously funded by the National Institutes of Health's Big Data to Knowledge initiative; Data Discovery Studio, a geoscience discovery index funded by the NSF; and Pangeo, a climate science discovery and integration platform funded by NSF and NASA.

"The initial focus of the project is on the biomedical, geoscience, and climate science fields but we envision that this technology can be extended to cover other scientific disciplines in the future," said Ohno-Machado. "We welcome partnerships with industry and with data scientists focusing on various disciplines in this project intended to seed a much larger initiative to connect datasets across multiple disciplines in a global scale."

CAIDA Pushes the Boundaries of Internet Science with KISMET Project

The $1 million Convergence Accelerator planning grant made to the Center for Applied Internet Data Analysis (CAIDA) based at SDSC is for evaluating the feasibility of codifying an Open Knowledge Network about properties of the internet identifier system – the domain names and addresses that represent communication entities – and the rich structural relationships among these entities. The ultimate goal is to address long-standing gaps in consumer protection and cybersecurity operations and research.

"Despite herculean efforts across industry, government, NGOs, and academia, we still lack an understanding of the effectiveness of risk-mitigating efforts, or to what extent such defenses have been deployed," said CAIDA Director KC Claffy. "Although data sources exist, their

volume, complexity, and disparate formats render knowledge elusive, and where it emerges, often proprietary."

The CAIDA project – called OKN-KISMET for Open Knowledge Network - Knowledge of Internet Structure: Measurement, Epistemology, and Technology – will consist of two key tasks. The first is focused on a team-building effort led by initial partners with a strong history of navigating the interdisciplinary challenges of internet mapping research, including commercial and privacy sensitivities, notably evidence of vulnerabilities or harm to businesses, consumers, and the infrastructure itself.

The second task will leverage the set of use cases prioritized by the emerging team to undertake the design and prototyping necessary to explore the technical feasibility of the proposed Open Knowledge Network.

The KONQUER award is funded under NSF grant #1937136. The CAIDA award is funded under NSF grant #1937165.

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