



Technology Infrastructure
for Data Exploration

CSU CIO Council TIDE Update
January 18, 2024

Michael Farley, Chief Technology Research Officer, SDSU
Gerard Au, Chief Information Officer, CSUSB

<https://tide.sdsu.edu/>

- National Science Foundation, Campus Cyberinfrastructure (CC*): Regional Computing (Area 5), [Award # 2346701](#)
- Two year award: 1/1/2024 - 12/31/2025
- Total award: \$991,749
 - Server Hardware: \$739,921
 - Graduate student assistants at four campuses: San Diego, San Bernardino, Humboldt, and Stanislaus.
 - Personnel costs at San Diego Supercomputer Center
 - Yearly travel for project meeting



U.S. National
Science
Foundation





- Create a computational core facility within the CSU
- Focus on machine learning and AI
- Enable science drivers across the CSU
- Address the lack of equitable access to cyberinfrastructure
- Democratize GPU access, thus facilitating full participation in the AI revolution
- Address support and on-boarding by forming a support team







Core Project Team

SDSU



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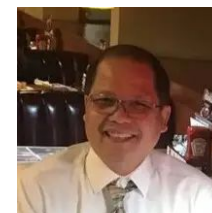


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CSUSB

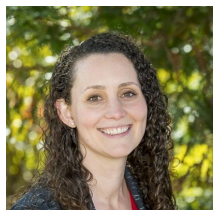


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SDSC



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U.S. National Science Foundation
National Science Foundation, Campus Cyberinfrastructure: Regional Computing, Award 2346701




Science Drivers from Seven Early Adopter CSU Campuses


**AI/ML, Data Science,
High Performance Compute**




SDSU | San Diego State University | **CSUN** | CALIFORNIA STATE UNIVERSITY NORTHRIDGE




**Natural Sciences
(Physics, Chemistry, Biology)**



CALIFORNIA STATE UNIVERSITY SAN BERNARDINO | CALIFORNIA STATE UNIVERSITY Stanislaus




Biomedical, Genomics



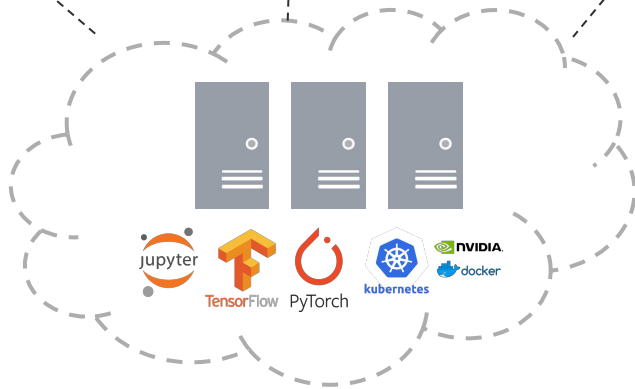
SDSU | San Diego State University | CALIFORNIA STATE UNIVERSITY Stanislaus

Cal Poly Humboldt.

Archeology, Geology




CALIFORNIA STATE UNIVERSITY SAN BERNARDINO | **Cal Poly Humboldt.**



jupyter | TensorFlow | PyTorch | kubernetes | NVIDIA | docker

Mathematics



CALIFORNIA STATE UNIVERSITY SAN BERNARDINO



- TIDE will be integrated into the National Research Platform (NRP) Nautilus Hyper-Cluster
- Builds on existing knowledge at SDSU, CSUSB, and Cal Poly Humboldt
- NRP provides systems administration of TIDE nodes, freeing staff to focus on science drivers
- JupyterHub for interactive use and software containers for more advanced uses
- Diverse community and uses cases to build upon



<https://nationalresearchplatform.org/>



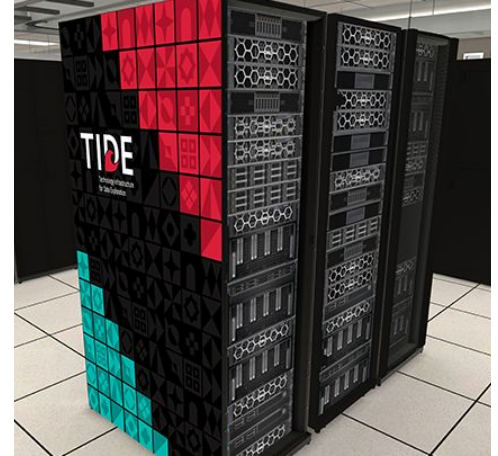
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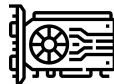


Hardware Details

Node Type	Qty.	Details
GPU	17	Dell PowerEdge R760XA (2x) Intel Xeon Silver 4410Y 2G CPU, 12C/24T (4x) Nvidia L40 GPU, 48 GB RAM 512 GB System RAM
GPU Advanced	1	Dell PowerEdge R750XA (2x) Intel Xeon Gold 6338 2G CPU, 32C/64T (4x) Nvidia A100 GPU, 80 GB RAM 512 GB System RAM
CPU	6	Dell PowerEdge R760 (2x) Intel Xeon Gold 6430 2.1G CPU, 32C/64T 768 GB System RAM
Storage	3	Dell PowerEdge R760 (2x) Intel Xeon Gold 6442Y 2.6G CPU, 24C/48T 256 GB System RAM 240 TB RAW Capacity



616 CPU Cores



73 GPUs



14.592 TB RAM





- CyberTraining: Training and Developing a Research Computing and Data (RCD) CI Professionals Community
- A joint program between UC San Diego, San Diego State and CSU San Bernardino partners to develop a CIP workforce
- Focus on training and mentoring a team of interdisciplinary researcher-facing CI professionals
- Wrapping up the first year of CIP Fellows; actively recruiting out next next cohort for a February 2024 start



Project site:

https://www.sdsc.edu/education_and_training/cip_fellows_program.html



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NSF [Award # 2230127](#)





Timeline

January - March 2024	April - June 2024	July - September 2024	October - December 2024	January 2025 and Beyond
<ul style="list-style-type: none"><input checked="" type="checkbox"/> Hardware configuration and procurement<input checked="" type="checkbox"/> Data center power work<input checked="" type="checkbox"/> Website and news releases<input checked="" type="checkbox"/> CSU CIO Council updates<input checked="" type="checkbox"/> Project kick off and organization<input type="checkbox"/> Support team forming<input type="checkbox"/> Graduate student assistant hiring	<ul style="list-style-type: none"><input type="checkbox"/> Hardware installation and configuration<input type="checkbox"/> Network configuration, including additional perfSonar installation<input type="checkbox"/> JupyterHub deployments<input type="checkbox"/> Initial science driver on-boarding<input type="checkbox"/> Reporting and metric collection	<ul style="list-style-type: none"><input type="checkbox"/> Cal State Tech Conference<input type="checkbox"/> In-person project meeting<input type="checkbox"/> Open TIDE for additional science drivers<input type="checkbox"/> Host virtual user summit / webinar	<ul style="list-style-type: none"><input type="checkbox"/> Focus on documentation, processes and scaling support	<ul style="list-style-type: none"><input type="checkbox"/> Project milestones and annual report<input type="checkbox"/> General availability





Thank You



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