Data Center Technology Enhancements

Goal 1: Establish the groundwork for Upgrading the Data Center with Dell Hybrid Cloud Solution and Wireless Network Expansion.

- Data Center Technology Enhancements (Hybrid Cloud Infrastructure).
- Provide extended wireless network coverage to ASU locations that have limited, unreliable, or no wireless access. Eight historical buildings were selected, which included residential and academic buildings.



Cybersecurity Program Management and Support

Goal 2: Establish and maintain a cybersecurity program that provides comprehensive strategic planning, governance, and advisory consulting support for ASU to maintain compliance with industry best practices and regulations regarding information security and data protection/privacy (e.g., FERPA, HIPAA). ASU partnered with a professional service provider to assist with a few items;

- Review existing system architecture, policies, and operational procedures to determine the presence and effectiveness of security and privacy controls.
- Identify any deficiencies or inefficiencies in current security controls.



Cybersecurity Program Management and Support (cont.)

- Formulate a comprehensive, prioritized security roadmap for ASU to achieve and maintain compliance and acceptable risk.
- Create critical policies and procedures as a foundation for ASU's security and privacy program.
- Perform Annual Security Training for ASU staff, faculty, and students.
- Perform annual Security Assessment and Risk Analysis.



Campus Based Mobile Application (RAFTR)

Goal 3: Develop a campus-based mobile application (app) that creates a central point of access for students, faculty, staff, and alumni to interact with the University's systems and activities.





Community Digital Technology Center

Goal 4: Provide Anchor Community (Paterson Court – Housing Authority) with an innovative digital technology center to provide residents with access to both digital technologies and digital navigation services to guide them on the use of digital technologies.

• This platform is preparing community members with the digital literacy skills necessary to compete in the digital economy.



Thank You





OAC Funding Opportunities for the MS-CC Community

Amy Apon, PhD Program Director Office of Advanced Cyberinfrastructure



October 29, 2024



Programmatic directorates and offices supporting the NSF Mission

Engineering

Biological Sciences

> **Mathematical & Physical Sciences**

Integrative Activities

International Science & Engineering

Technology, **Innovation and** Partnerships

Geosciences (including Polar Programs) - Carlos Billion

Social, **Behavioral &** Economic **Sciences**

Computer & Information Science & Engineering

Education &

Human Resources

Division of Computer & Network Systems

Division of Computing & Communications Foundations

Division of Information & Intelligent Systems

Office of Advanced Cyberinfrastructure

A Partial list of NSF and CISE Infrastructure Funding Sources for Things



CC* Regional investment examples



ESI-MORe-OFFN

CaRE-MORe-OFFN

SURF-MORe-OFFN

0000

....

A Regional Computing Hub for Alabama Universities NSF #2232873

Facilitate multiple graduate and undergraduate student programs



Enable Alabama research programs in space science, computer science, chemical engineering, plant science, photonics, aerospace and mechanical engineering, drug discovery



Network

CC* campus and regional investment examples



Support for Campus Connections to Regional Research and Education Network



Lawrence 2.0 Advancing Multidiscipinary Research and Education in South Dakota, OAC 2346643



- Support for computationally intensive research and education;
- Outreach to state and regional collaborators and SD tribal institutions





Software and Data Infrastructure Programs



CyberTraining: Training-based Workforce Development for the Cyberinfrastructure Workforce

Vision: Prepare, nurture, grow scientific research workforce

- Ensure broad adoption of CI tools, methods, and resources
- Innovative, scalable training, catalyze research with training
- Most projects develop instructional materials
- Integrate CI and CDS&E skills into undergrad/grad curricula
- Three levels: Pilot (\$200K), Small (\$500K), and Medium (\$1M)
- •NSF 23-520, deadline January 16, 2025

arctic science * geoscience * climate water environment * construction science * bioengineerin g * dark matter discovery * earth science * molecular science * cybersecurity * physics ...



https://encyclopediaofale/seme ove/media/fly-fishing-in-alabama/

How do you find a program that fits you?

NSF award search on "gateway"

https://www.nsf.gov/awardsearch/

Click on Advanced Search

Find projects and program officers by keyword search

	Recipien	t Information		
 Principal Investigator First Name Principal Investigator Last Name Include Co-Principal Investigator in name search 		 Organization State Zip Code Country 	Select one Select one	
	Progran	1 Information		
 NSF Organization Element Code Reference Code 	Select one Select one All Any All Any All Any All	HINT: The "Program" box se reference names and codes. Program Program Officer	earches both program e	lemer
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This search returns active projects. You want to find one "like" yours.

(*)	Export up to 3,000 Awards:		d.			Export All Results
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Keyword gateway	CI CoE: SGX3 - A Cer	nter of Excellence to Extend Access,	Expand the Community, and Ex	emplify Good Practices for CI	Through Science Gate	ways
Active Awards true	Award Number:223140 Organization:University	06; Principal Investigator:Sandra Gesing v of California-San Diego:NSF Organizat	; Co-Principal Investigator:Linda Ha ion:OAC Start Date:09/01/2022; A	ayden, Marlon Pierce, Maytal Dał ward Amount:\$8,796,062.00; Re	nan, Sandra Gesing, Claire elevance:43.07;	e Stirm;
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NSF Organization	Award Number:221163 Date:08/01/2022; Awa	31; Principal Investigator:Mark Miller; Co ard Amount:\$1,112,716.00; Relevance:4	o-Principal Investigator:Wayne Pfeif 43.07;	fer; Organization:University of C	alifornia-San Diego;NSF (Drganization:DBI Start
 Direct For Mathematical & Physical Scien(33) Direct For Social, Behav & Economic Scie(10) Direct For Computer & Info Scie & Enginr(85) Directorate For Geosciences(41) 	Mathematics Persist Award Number:195371 Organization:EES Start	ence through Inquiry and Equity: Re 13; Principal Investigator:Mary Pilgrim; (t Date:06/01/2020; Award Amount:\$1,2	developing Gateway Mathemati Co-Principal Investigator:William Za 271,684.00; Relevance:43.07;	ics in a Two-year HSI to Pron hner, Daniel Reinholz; Organizat	note Success in STEM tion:San Diego State Univ	ersity Foundation;NSF
 Directorate For Engineering(7) Direct For Biological Sciences(25) Directorate for STEM Education(135) Dir for Tech, Innovation, & Partnerships(7) 	Travel: Conference: Award Number:243378 Date:08/01/2024; Awa	Gateways 2024 34; Principal Investigator:Sandra Gesing ard Amount:\$32,251.00; Relevance:43.0	; Co-Principal Investigator:; Organi 07;	ization:University of California-Sa	an Diego;NSF Organizatio	n:OAC Start
Award Amount	Mathematics Persist	ence through Inquiry and Equity: Re	adeveloping Gateway Mathemat	ics in a Two-year HSI to Pron	note Success in STEM	a l
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Between \$100,001 - \$500,000(134) Between \$500,001 - \$1,000,000(108)	NNA Track 1: Collabo cyberinfrastructure	orative Research: The Permafrost Di	scovery Gateway: Navigating th	e new Arctic tundra through	Big Data, artificial inte	lligence, and

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Hint: Export the results to Excel so that you can search and sort

File Home Insert Page Layout Formulas Data Review View Automate Help Acrobat

Y143 v : X / fx Implementation Projects in the Historically Black Colleges and Universities - Undergraduate program provide support to design, implement, study and assess comprehensive institutional efforts to increase the number

A	В	C	DK	U	V	Y	Z	AA	AB	A
20 2129961	Scholarships for Talented Underprivileged STEM Student Success	DUE	S-STEM-Schlr Sci Tech Eng{Abby Ilumoka	EDU	153600	This projec	t will contribute	e to the na	tional nee	ed for
21 1833851	Cardinal STEM Scholars Program: Guided Pathways to Increase STEM Degree Completion	DUE	S-STEM-Schlr Sci Tech Eng{Mike Ferrara	EDU	153600	With fundin	g from the NS	F Scholars	ships in S	cienc
22 1741869	Collaborative Research: Institutional Collaboration to Recruit, Retain and Graduate Low-Incor	ne (DUE	S-STEM-Schlr Sci Tech Eng Thomas Kim	EDU	153600	Coker Colle	ege, College o	f Saint Eliz	zabeth, F	errum
23 1930184	Navigating Pathways to Success: Improving Outcomes for Rural Community College STEM So	hol DUE	S-STEM-Schlr Sci Tech Eng Lulu Sun	EDU	153600	Millions of S	STEM jobs are	e projecter	to go ur	filled
24 1833904	Community Research and Cognitive Reframing for a Community Retained in Science	DUE	S-STEM-Schlr Sci Tech Eng{Nasser Alaraje	EDU	153600	With fundin	g from the NS	F Scholars	ships in S	cienc
25 2221350	Research-based Interventions for STEM Engagement	DUE	S-STEM-Schlr Sci Tech Eng Eleanor Sayre	EDU	153600	This projec	t will contribute	e to the na	tional nee	ed for
26 2221187	Enhanced Learning and Training Experiences to Support Talented, Low-Income STEM Studen	ts DUE	S-STEM-Schlr Sci Tech Eng Eleanor Sayre	EDU	153600	This projec	t will contribute	e to the na	tional nee	ed for
27 1742517	Academic Collaboration and Coordination model to Ensure Student Success in STEM (ACCES	SSDUE	S-STEM-Schlr Sci Tech Eng Thomas Kim	EDU	153600	This Schola	arships in Scier	nce, Techr	nology, E	ngine
28 2030621	Early Research Experiences and Mentoring to Increase the Numbers of Biology and Chemistry	GIDUE	S-STEM-Schlr Sci Tech Eng Kalyn Owens	EDU	153600	This projec	t will contribute	e to the na	tional nee	ed for
29 1832772	Recruiting and Fostering Students through Field Geoscience	DUE	S-STEM-Schlr Sci Tech Eng Keith Sverdrup	EDU	153600	The NSF S	cholarships in	Science, 7	Technolog	y, Er
30 1742366	Collaborative Research: Institutional Collaboration to Recruit, Retain and Graduate Low-Incom	e SDUE	S-STEM-Schlr Sci Tech Eng Thomas Kim	EDU	153600	Coker Colle	ege, College o	f Saint Eliz	zabeth, F	errun
31 1644138	The Virginia Tech Network for Engineering Transfer Students (VT-NETS)	DUE	S-STEM-Schlr Sci Tech Eng& Thomas Kim	EDU	153600	The Virginia	a Tech Networ	k for Engi	neering T	ransf
32 1751664	CAREER: Experimental Constraints on Carbon-Iron Redox Interaction in Earth's Deep Lower N	Man EAR	Petrology and Geochemistry, Jennifer Wade	GEO	157300, 1	574 Earth's dee	p carbon cycle	e affects t	he past, p	prese
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35 2311206	Collaborative Research: Frameworks: Quakeworx - An extensible software framework for ear	thqi OAC	Geophysics, GEO CI - GEO Marlon Pierce	CSE	157400, 2	43Y Physics-ba	sed forecasts	of seismic	hazard f	rom f
36 2103621	Collaborative Research: Frameworks: Seismie COmputational Platform for Empowering Disco	ver OAC	Geophysics, XC-Crosscutting Varun Chandola	CSE	157400, 7	222 Seismology	is the most p	owerful to	ol for inve	estiga
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Some columns are hidden in this snip:

- A is the award number
- D is the program
- K is the cognizant Program Officer

- Google NSF.gov <PO name> to get the Program Officer's email address
- Email the PO with a "one-pager" and ask, "Is your program a fit for my idea?"

Questions

Amy Apon awapon@nsf.gov g

STATES.





Enhancing resources through regional collaborations Panel

- Dr. Sajid Hussain, Atlanta University Center Data Science Initiative
- Jarralynne Agee, Senior Vice President of Strategic Initiatives, Special Assistant to the President, Miles College
- **Dameion Brown,** CISO, Jackson State University
- Brian Garner, Fisk University





Campus Perspectives on Funding (Panel)

- Dr. Kylie Nash, CIO, AAMU
- **David Lockett,** Grants Proposal Development and Award Management Specialist, Meharry Medical College
- **Dr. Raziq Yaqub**, Associate Professor Department of Electrical Engineering and Computer Science, AAMU



Break Until 2:45 PM

Workshop Resources:

CYBERINFRAS



EDUROAM access

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CONSORTIU

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Research and Education Networks (RENs) / Cl Resources in the Region

- **Sanju Timsina,** HPC Facilitator, Advanced Research Computing Technology & Innovation Core (ARCTIC)
- Suranga Edirisinghe, Associate Director, ARCTIC
- Nathalie Palmer, Vice President, Southern Crossroads (SoX)
- Dr. Purushotham Bangalore, Program Director, NSF

CUI//PRVCY



No-Cost Computing Resources for Researchers and Educators

Purushotham V. Bangalore, Ph.D. Program Director Office of Advanced Cyberinfrastructure Directorate for Computer and Information Science and Engineering U.S. National Science Foundation

MS-CC Workshop: Campus Technology, Cybersecurity, & Research Computing Support – October 29-30, 2024

CUI//PRVCY

National Science Foundation

The National AI Research Resource (NAIRR) Pilot

https://nairrpilot.org

NAIRR Pilot

Available Resources

https://nairrpilot.org/

CLASSROOM AND EDUCATOR RESOURCES

Request access to educational platforms (such as Juypter notebooks).

Apply

RESEARCHER RESOURCES

Request access to advanced computing, cloud computing, models, software, platforms, and collaborations.

DATA, MODELS, AND MORE

Additional government and government-funded resources that do not require an application.

Apply

View



NAIRR Pilot Computational resources available





Frontera – UT Austin



Delta + DeltaAI – U. Of Illinois



Jetstream 2 – Indiana U



Anvil – Purdue



Bridges 2 + Neocortex – U. Pittsburgh/CMU



Expanse+Voyager UCSD



ACES - Texas A&M University



NAIRR Pilot



Al Testbed – Argonne NL



Summit – Oak Ridge National Lab

Beyond compute towards services and collaborations





Several agency datasets are available through the pilot



NAIRR Pilot

National COVID Cohort Collaborative





Tropical Cyclone Dataset





Lake Michigan Substrate Prediction Dataset



US Census of Agriculture

USPTO Research Dataset

Note: NAIRR Steering subcommittee on Data and Models is working on a process for non-govt datasets to be contributed to the NAIRR Pilot

NAIRR Pilot

Democratizing Al Through Access to Cyber-infrastru cture Request NAIRR Pilot Resources to Advance AI Research at: <u>https://nairrpilot.org/opportunities/</u> <u>allocations</u>

Look for news and events and sign up for updates at: <u>https://nairrpilot.org</u>



The ACCESS Program Advanced Cyberinfrastructure Coordination Ecosystem Services and Support





Cyberinfrastructure Available

- Computing systems
 - Varying core counts & memory sizes
 - Cloud resources (persistent services)
- Accelerators
 - GPUs, vector processors, FPGAs
- Data storage systems
 - Archival, object, tiered
- Data repositories

ACCESS

- Software & workflow managers
- High performance networking
- CI Professionals & support tools
- System performance monitoring

Advancing



Current ACCESS Resource Providers (more to come!)

https://access-ci.org/resource-providers/

DEN InDemand *available on many ACCESS machines



access-ci.org

Step-by-Step Allocations Request

- Register for an ACCESS ID
- Select the <u>Project Type</u> that best fits your needs
 - If you're new, start with *Explore* and upgrade when you need more resources!
- Complete the Request Form
 - Add co-PIs, Allocation Managers, and other Users (make sure they have an ACCESS ID)
- Exchange your allocated credits for the <u>Available Resources</u>
- Start your research, development, or educational (classroom) work!

Link to full "Get Your First Project" guide





ACCESS vs. NAIRR Pilot

- Long-term research and educational initiatives
- All project types not just Al-related
- Traditional CPU, GPU, storage resources & services
- Most projects requests approved in ~1 business day and accounts available in ~3 business days

- Short-term projects with immediate results
- AI-focused projects that align with the NAIRR Pilot focus areas
- Diverse set of resources
 including industry partners
- Requests take ~6-8 weeks for review and processing





Questions?

NAIRR Pilot Website: https://nairrpilot.org ACCESS Website: https://access-ci.org





Southern Crossroads (SoX)

MS-CC Workshop–October 29, 2024 Natalie Palmer Georgia Tech – Southern Crossroads (SoX) <u>natalie@sox.net</u>





What is Southern Crossroads-SoX?

Southern Crossroads (SoX)

- Also known as Southern Light Rail (SLR)
- 501(c)3 organization that serves the Southeastern U.S. Research and Education community.
- SoX provides highspeed, global connectivity and other commodity services.
- Serves as the Southeast connector to Internet2, ESnet and other major U.S as well as International research networks.
- The regional network connecting AL, GA, SC, TN, with national research and education backbones.

Affiliate organization of Georgia Tech

- SoX partners with Georgia Tech to push forward strategies that each organization is working toward.
- Georgia Tech has strategic goals to "connect globally" and to "expand access".
- Goals and Mission align: Provide reliable cyberinfrastructure, high-performance global connectivity, and services.
- Enables collaboration and partnerships for our community.






Who does SoX serve?





- Colleges and universities
- K-12 education networks
- Federal agencies
- Government laboratories and non-profit institutions that promote research in the Southeast region of the United States.



• SoX core services are enabled from Atlanta, GA and Nashville, TN







THE QUILT: What it is and What it does

Through The Quilt, * non-profit regional research and education networks (like SoX) collaborate to develop, deploy and operate advanced cyberinfrastructure that enables innovation in research and education.

- Nearly 50 members and * affiliates across the US.
- SoX is a Quilt member



HISTORICALLY BLACK COLLEGES AND UNIVERSITIES NETWORK CONNECTIVITY



SoX and HBCUs



LOOK WHO'S CONNECTING....











Georgia Tech



Our Team





IT Professional Georgia Tech

President Southern Crossroads



Natalie Palmer

Senior Director SoX IT Engagement Georgia Tech

> Vice President Southern Crossroads



Scott Friedrich

IT Professional Georgia Tech

Lead Engineer Southern Crossroads



Joy West Assistant Director Business Operations Georgia Tech

> Assistant Treasurer Southern Crossroads



Melanie Paulina

Administrative Operations Specialist Georgia Tech

> Assistant Secretary Southern Crossroads











NSF Campus Cyberinfrastructure Award ID: 2346630 CC* Regional Networking: Advancing Research and Education at small colleges in Rural and Metropolitan Alabama and Tennessee through IT Architecture Enhancements

Project Period: June 1, 2024 - May 31, 2026

















NSF Award# 2346630: CC* Regional Networking: Advancing Research and Education at small colleges in Rural and Metropolitan Alabama and Tennessee through IT Architecture Enhancements

- Bringing advanced networking campus cyberinfrastructure to under-resourced colleges and universities in Tennessee and Alabama.
- Regional science DMZ and measurement instrumentation to facilitate data movement
- Training and workshops for IT, faculty, researchers, and students













NSF CC* QUAD CHART APRIL 19, 2024

Quad Chart for: NSF Award# 2346630: CC* Regional Networking: Advancing Research and Education at small colleges in Rural and Metropolitan Alabama and Tennessee through IT Architecture Enhancements

Challenge Project Seeks to Address:

- Enhancing network connectivity to under-resourced Colleges and Universities
- Connect to regional, national, and international networks for collaboration, compute resources, access to instruments, and instructional resources

Solution(s) or Deliverables:

- Provide equipment and 10G circuits for enhanced networking at 5 under-resourced campuses
- Measure performance at each campus and enable regional science DMZ
- Train and hold workshops on research tools and resources as well as IT cyberinfrastructure



Scientific Impact or Broader Impact:

- Computation Models for Beetles
 Microbiomes in Stratosphere
- Research in this project includes statistical and machine learning techniques for data analysis and has connected gut microbiomes to conditions such as depression, anxiety, obesity, and autism
- Integration of Process Models and Deep Learning Algorithms with Large Hydrological Datasets for Robust Groundwater Recharge Prediction

Metadata tag:

- https://www.gatech.edu
- https://www.sox.net
- We are coordinating with collaborators



Southern Crossroads (SoX)

MS-CC Workshop–October 29, 2024 Natalie Palmer Georgia Tech – Southern Crossroads (SoX) <u>natalie@sox.net</u>





Advanced Research Computing Technology and Innovation Core





About Georgia State

- Located in ATLANTA GA
- Urban public research
 university
- 224.72 million in research funding in fiscal year 2023
- <u>https://research.gsu.edu/</u>





About ARCTIC

- Established in 2020
- Funded by National Science Foundation (NSF) Major Research Infrastructure (MRI) Grant
- 75 Million CPU hour capacity
- 1.5 Million GPU node hour capacity
- 70 TB total system memory
- Federated identity management using CILogon
- <u>https://arctic.gsu.edu</u>

User Group Distribution by Field of Science



Sum of Active Allocation Count

BY FIELD OF SCIENCE

Current usage 130 PI 750 Active users

pnomics	Computational Biology	Algorithm Developm	Computer Systems A	Computer and	In Decisior	, Risk, an S	tatistics and	Pro _n .
	Computer and Computation Theory							
		Biomedical Engineering a	a Epidemiology Ph	iysics	Robotics and .	. Training	Bioc	he
	Physical Chemistry							
		Small Business Innovatio						
			Computational M	Methodolo	Microbiolo	Social and	Biol	Bio
uroscience		Police Proceeding Processes	Computer and Co					
	Psychology	Solar terrestrial kesearch		Cell Biology	Exper Imr	nu Indus	infor In	ifon
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Active Users Distribution by Field of Science



Sum of User Count by Field of Science

Neuroscience	Economics	Physical Chemistry	Physics	C	Comput	a	Com	pute	è
	Computer and Information Scie	Epidemiology	Virology	Social	a Ro	oboti	So	olar	
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				Dyna.	" Stella	a 🗅	J		

Research Highlights

Dr. Alejandro Del Valle : (Risk Sciences)

 Development Economics, Applied Microeconomics, Environmental Economics, Health Economics

Economic effects of natural disasters and aims to identify how government policies and markets can help society adapt to climate change

• Dr. Arun Rai : (Information Systems)



 Digital Innovation and Transformation, Managing Artificial Intelligence, Platform Business Models and Ecosystems, Design and Use of Information Systems, Governance of Digital Resources, Economic, Behavioral, and Societal Impacts of Digital Technologies

The research has contributed to understanding of the design, use and impacts of information systems, digital transformation of organizations and supply chains, governance of IT resources, online collectives and digital platforms, and deployment of digital innovations to address societal problems including poverty, health disparities, infant mortality and digital inequality

Blue Green (0.45-0.52µm) (0.52-0.60)



(1.55-1.75)



Research Highlights



Dr. Andrew Gewirtz: (Biomedical Sciences)

 Innate Immunity, Microbiome, Intestinal Inflammation and Obesity/Diabetes

 Understand the normal mechanisms by which pro-inflammatory signals protect against microbes and discern how they go awry in disease states

- Dr. Samer Gozem: (Chemistry)
 - Computational Chemistry, Modeling of Photochemical and Photobiological processes
 - investigate light-induced chemistry in chemical and biological systems



Research Highlights

- IOT instrumentation and data collection
 - Dr. Xiaochun He Global Cosmic Ray detector network









Research Highlight



<u>Burmany</u> The first initialiment of the Pulitzer Prize-winning graphic novel sootsimed as "the most affecting and eucostarul narrative seer done about the Nolosoust" (Wall Breet Journal) and "the first masterpiace in somic book history" (The New Yorken; A brutally moving work of art -wids); halled as the grasted graphic novel ever written. Alsus recounds the chilling experiences of the subhor's fisher during the holosoust, with Jewer dawn are subdayed more and Nazis as mensance data and have the neutring take within a take, weaking the subhor's sootsing outs Marus is a neutring take within a take, weaking the subhor's sootunt

Sponsored Content

Wandering Stars (Year: 2024) (Genre: Historical Fiction)

The system also calculates predicted ratings for sponsored content, and it predicts you would like this book: 8.48 out of 10



<u>Butmany</u>, The segerty availse follow-up to Pulitizer Prist-Analist Tommy Orange's preskout best elser There There winner of the Peli-Heimingway Award, the John Leonard Prist, the American Book Award, and one of the Hew York Times 16 Best Books of 2013 V. Winnering Stars traces the legolises of the 3 and Creek Viscoure of 1584 and the Carrule indian industrial Sobol Through to the chattering starmath of Orvin Red Fasharts. Hoolong in Three There, Ocionado, 1884. Mits, a young survivor of the Isand Creek Wassawa, to Brought to the Fort Marico Pricon washe where the Fasharts. Booling Interpreting Period.

The Name of the Wind (Year: 2007) (Genre: Fiction) The system predicts you would like this book: 9.9 out of 10



<u>Bummary</u>, Told in Kvotha's own voise, this is the late of the magloally gifted young man who grows to be the most holonous witand his world has ever seen. The instmate narrasive of his allichoods in a totupe of traveling players, his years tephnic as a near-fair organism in a suffractional rule, into earling brazan year (successful bid do enter a legendary schood of magio, and his life as a fulfilive after the murder of a king form a organism of charge story murvale in the near therafure. A highability with a poet b hand, The Name of the Wind is a masterplace

The Hobbit and The Lord of the Rings (Year: 1973) (Genre: Fantasy) The system predicts you would like this book: 9.9 out of 10



Summary: This four-volume, boxed set sontains J.R.R. Tolkien's epio masterworks The Hobbit and the three volumes of The Lord of the Rings (The Felicivenia of the Ring, The two Suvers, and The Relum of the Hings (In The Hobbit, Inico Baggins is whiteked sway from his controf table, unambitious (ifs in Hobbits of the Ring and a company of dwarves. He finds timself cought up in a plot for tail the treasure noard of Simulg be Magnificent, a large and vary denormal dragor. The Lord of the Rings tails of the great quest underfaher by Frodo Second soft the Edinavity of the Date Changet the anternite Mobility for the Second Second for the Second soft the Edinavity of the Date Changet the anternite Mobility for the Second Second for the Second soft the Edinavity of the Date Changet the anternite Mobility for the Second soft the Edinavity of the Date Changet the Second Second for the Second soft the Edinavity of the Date Changet the anternite Mobility for the Second soft the Edinavity of the Date Changet the Second Second for the Second soft the Second S

- Flask application deployed on K8s.
- CI/CD pipeline using Github Actions.
- Making life easier with deployment automation, faster product delivery, cost savings

(Rating 10 = you like the book the most. Rating 0= You like the book the least)

- . If you need more information about books, you can click on the name of each of them.
- · Once you are done with the rating, click on Show Recommendations.

You have rated 0 books

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Book Tide	Genre	Year	Your Rating	1
The Fault in Qur Stars	Historical Fiction	2012	V	
Min som hatar kvinnor	Fiction	2005	V	1
fatry Patter and the HalfBlood Prince	Fantasy	2005	~	
The Heta	Fantasy	2009	V	
The Lightning Thief	Fantasy	2005	V	
Fifty Shades of Grey	Historical Fiction	2011	~	
Eat, pray, love one womens search for everything across Italy, India and Indonesia	Methoir	2006	~	
The Book Thief	Historical Fiction	2005	V	
City of Bones	Fiction	2007	~	
New Moon Twilight,	Fantasy	2006	V	
Eclipse	Fantasy	2007	V	
Water for Elephants	Fiction	2008	~	
The Git on the Train	Memoir	2015	V	
A Thousand Splendid Sums	Fiction	2007	V	
Looking for Alaska	Fiction	2005	V	
The Maze Runner	Chick Lit	2009	V	
	Memoir.	2005		-

- Dr. Nasim Mousavi (Computer Information Systems)
 - Science gateways Support research needs that are not strictly computing



Research Highlight





Isolation of primary mouse neurons 2 day old pups Susceptible Susceptible Resistant Resistant Isolation of neuron cells (cortex/hippocampus) **Flavivirus infection** Sequencing WNV NY99 NB media (serum) NB media (plain) neuron growt allo att att all all all all all all all ---days post infection Analysis of viral titers from culture media



Transcriptomic Analyses of Flavivirus-Infected Neurons from Genetically Susceptible And Resistant Mice

• Dr. Margo Brinton (Biology)



Research Highlight



- Al-augmented educational technology
 - Dr. Min Kyu Kim
 - Associate Professor, founding director of the Al² Research Laboratory
 - Al² Research Laboratory builds an interdisciplinary and cross-institutional effort that unites experts in learning sciences, computer sciences, STEM educators and literacy researchers from multiple institutions.

AI-Supported Learning

We have deployed advanced AI techniques-for example, affective computing and Natural Language Processing (NLP) AI- to develop automated formative assessment and feedback technologies for learner cognition, motivation, and emotions.

Interactive Learning

Human-Computer Interaction is not just about learner-to-computer interaction. Technology can enable learners to be more interactive with peers and instructors in technology-based learning environments.

Augmented Learning

Teaching and learning effectiveness can be augmented by learning technologies appropriately integrated with the optimal pedagogy in a context. We focus on the affordances of new technologies to track and diagnose the patterns of learner performance and provide multi-dimensional scaffolds catered to individuals' needs.

Immersive Learning

Problem-centered learning requires effective problem-posing strategies that engage learners in a real-world problem situation. Given a problem context, learners play a pivotal role in solving the problem. We utilize mixed-reality and augmented-reality techniques to build immersive learning in real-world scenarios.

Getting access to ARCTIC Infrastructure

- 1. Management portal : <u>https://elpis.rs.gsu.ed</u> <u>u</u>
- 2. Authenticate using CILogon through your institution IDM
- 3. Become a PI in ARCTIC system by submitting a research proposal
- 4. Reviewed by allocation com

ACIDS (Cluster)
DLog in Abstract*

General description about what you plan to do with this allocation

Users

Select All Users Neranjan Edirisinghe Pathirannehelage (neranjan) Scott Burns (sburns17) Sanju Timsina (stimsina)

Select users in your project to add to this allocation.

Type*	Document*	-
Main Documer	Choose File No file chosen	Delet
Type*	Document*	-
Progress Repo	Choose File No file chosen	Delet
Type"	Document*	-
Publications	Choose File No file chosen	Defet



ARCTIC

Log In



Non-GSU Users: Use ClLogon to sign in.

CILogon

https://arcwiki.rs.gsu.edu/en/policy/resource-allocations#required-docu ments

Required Documents:

Main Document

 $_{\odot}$ Covers scientific background, research objectives and justification

- $_{\odot}$ 3 page max
- CVs for PI and CoPIs
- Code Performance and Scaling
 - $_{\odot}$ Covers claims of code performance
 - o 2 page maximum

Sample at https://arcwiki.rs.gsu.edu/elpis/proposal.pdf



Documents needed

Allocation Approval Process



- 1. No limit on computing resource requests and scratch (runtime) space
- 2. Long term storage allocations are limited to 1TB
- 3. Additional long term storage can be purchased at \$200/TB/3 years
- 4. Requests are reviewed quarterly by the Resource Allocation Committee
- 5. Committee may recommend internal review with cybersecurity in some cases
- 6. All allocations are for 1 year period
- 7. Progress report is needed for renewal

SUBMISSION PERIOD	USERS NOTIFIED	ALLOCATION BEGIN DATE
Jan 15 thru Feb 01	March 15	April 1
Apr 15 thru May 01	June 15	Jul 1
Jul 15 thru Aug 01	September 15	Oct 1
Oct 15 thru Nov 01	December 15	Jan 1

User Support

- Users can create ticket through
 <u>https://hydra.gsu.edu/</u>
- For users working in multiple projects, they can select the project they want to create the ticket for.



- Long term Collaborative Hands-On Support for Selective Projects.
- Consultation Appointments <u>https://outlook.office365.com/owa/calendar/A</u>
 <u>RCTIC@mygsu.onmicrosoft.com/b</u>



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Accessing the system

20

Files -

- Stata

Open OnDemand

- Hemera provides remote web access to cluster resources.
- •Lower the barrier to entry
- Support multiple applications,
- Interactive access and batch job submission



hemera.rs.gsu.edu/pun/sys/dashboard Jobs -ACIDs Interactive Apps * TReNDs Interactive Apps * My Interactive Sessions **3D** Modeling 3D-Slicer C Blender ed, single access point for all of your HPC resources. Biology CompuCell3D - CC3D Player CompuCell3D - TWEdit++ DeepLabCut Jupyter Lab - DeepLabCut Deep Learning O PyTorch (Jupyter Lab) TensorBoard TensorFlow (Jupyter Lab) Desktops Acids Desktop File Transfer RClone Browser RClone Web GUI GUIS RStudio SAS SPM SPM

Additional Research Support

- Containerized Custom application deployment and management on k8s
- CI/CD pipeline setup for easy deployment and maintenance
- IOT data collection and management
- Cloud-native data storage
- Provide resources for Educational purposes(For Eg; Class, Training)





Deployed Models and Services

- API for LLM training and inference deployed on K8s cluster.
- Interact with LLM models using WebUI.
- API and UI for Text-To-Speech and Speech-To-Text Conversion models.
- Pilot Project.







Huggingface Chat UI

 Using Meta-LLama-3-8B-Instruc t CA

atUI

25 ogmallm.rs.gsu.edu/chat/

New Chat

Can set system prompts
 through settings



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LLM Models

- Choose LLM models from the list to work with your desired LLM models.
- Pilot Project.



Menu	Proflex		
Jobs			
LLMs	Qwen2-5-72B-Instruct-GPTQ-Int4	llama-3-8b	zephyr-7b
	Model: Qwen/Qwen2.5-72B-Instruct-GPTQ-Int4	Model: meta-llama/Meta-Llama-3.1-8B	Model: HuggingFaceH4/zephyr-7b-bet
Logout	Show details	Show details	Show details





Request PI status: <u>https://elpis.rs.gsu.edu</u> Help desk: <u>https://hydra.gsu.edu</u>

Thank you!

Questions ? Answers ?















Wrapping Up the Day

Leslie Jones Director of Program Development, MS-CC Al Anderson Director of Cyberinfrastructure Programs, MS-CC



Feedback

Going around the room please provide one of the following:

- Something you liked or learned today
- Something you wanted more of
- Something that could have been better



Learned / Liked	More / Better
 Liked learning about different funding opportunities Liked the way conversations was about collaborations Liked the panels A lot of opportunities and collaboration which means needing to communicate IT and Faculty perspective on panels Liking that organizations can explain who they are and what they can do to provide 	 Be an better ambassador for their institution for people to participate in the MS-CC community and collaboration Helpful to record panels possibly Useful in future workshops to provide examples what is not Cl that is general IT



Follow-Up

[142]

Workshop Resources

INTERNET.

in partnership with





You Don't Have to Do it ALONE

MS-CC's Programming Can Help You

- Connect with other campuses.
- Learn from each other's endeavors.
- Identify opportunities for shared resources and advocacy.
- Develop CI capabilities in your students, faculty, and staff.
- Develop a CI strategic plan.





Join the MS-CC

https://bit.ly/JoinMS-CC

