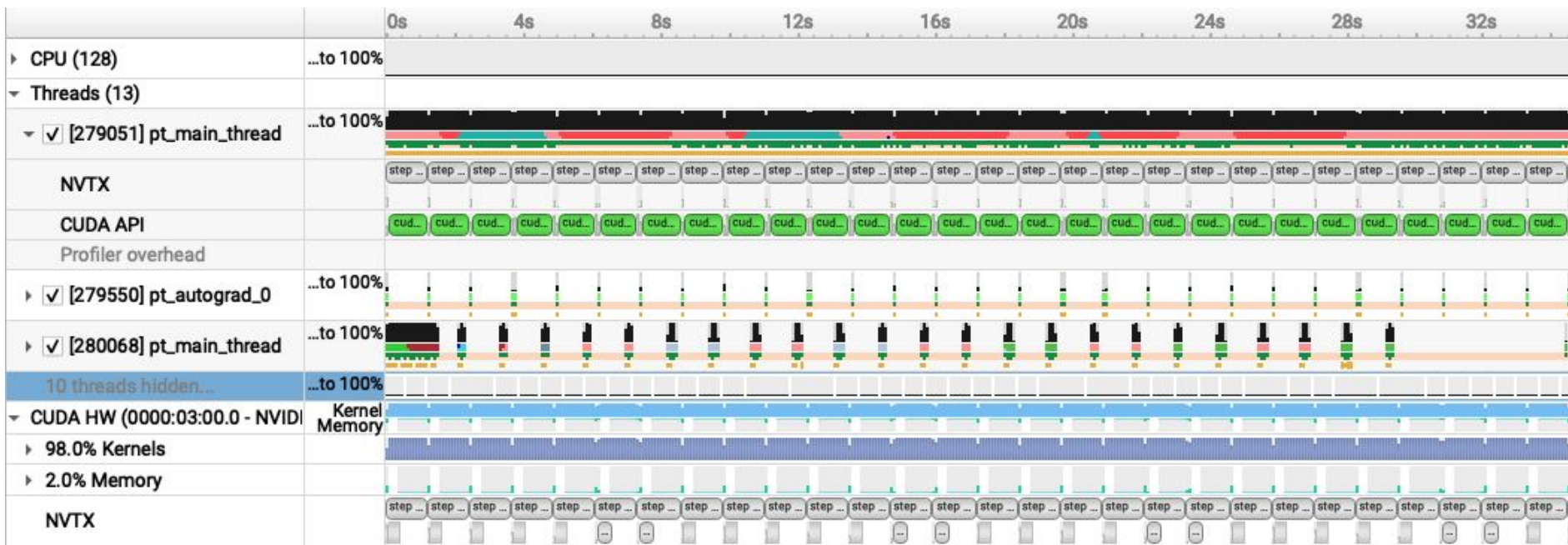


num_workers=4

NVIDIA Nsight



<https://github.com/NERSC/sc24-dl-tutorial>

TensorBoard

TensorBoard is a visualization and debugging tool for machine learning experiments.

Originally developed for **TensorFlow**, it now supports **PyTorch, JAX, and standalone logging**.

What Can TensorBoard Do?

It helps track and visualize various aspects of your ML training, including:

Scalars – Track metrics like loss, accuracy, learning rate over time.

Graphs – Visualize the model's computational graph.

Histograms – Analyze weight distributions and activations.

Images/Audio/Text – Inspect samples from datasets or model outputs.

Embeddings – Explore high-dimensional data using PCA or t-SNE.

Hyperparameter Tuning – Compare multiple training runs.

Profiling – Monitor GPU/CPU usage, memory, and bottlenecks.

TensorBoard on ACES portal

ACES OnDemand Portal Files ▾ Jobs ▾ Clusters ▾ Interactive Apps ▾ Affinity Groups ▾ Chatbot ▾ Dashboard



OnDemand provides an integrated, single access point to all HPRC resources.

Message of the Day

IMPORTANT POLICY INFORMATION

- Unauthorized use of HPRC resources is prohibited and will result in suspension of access.
- Use of HPRC resources in violation of United States Export Control Regulations is prohibited.
- Sharing HPRC account and password information is strictly prohibited. Any shared accounts will be suspended.
- Authorized users must also adhere to ALL policies and procedures.

GUI

- VNC
- NextSilicon VNC

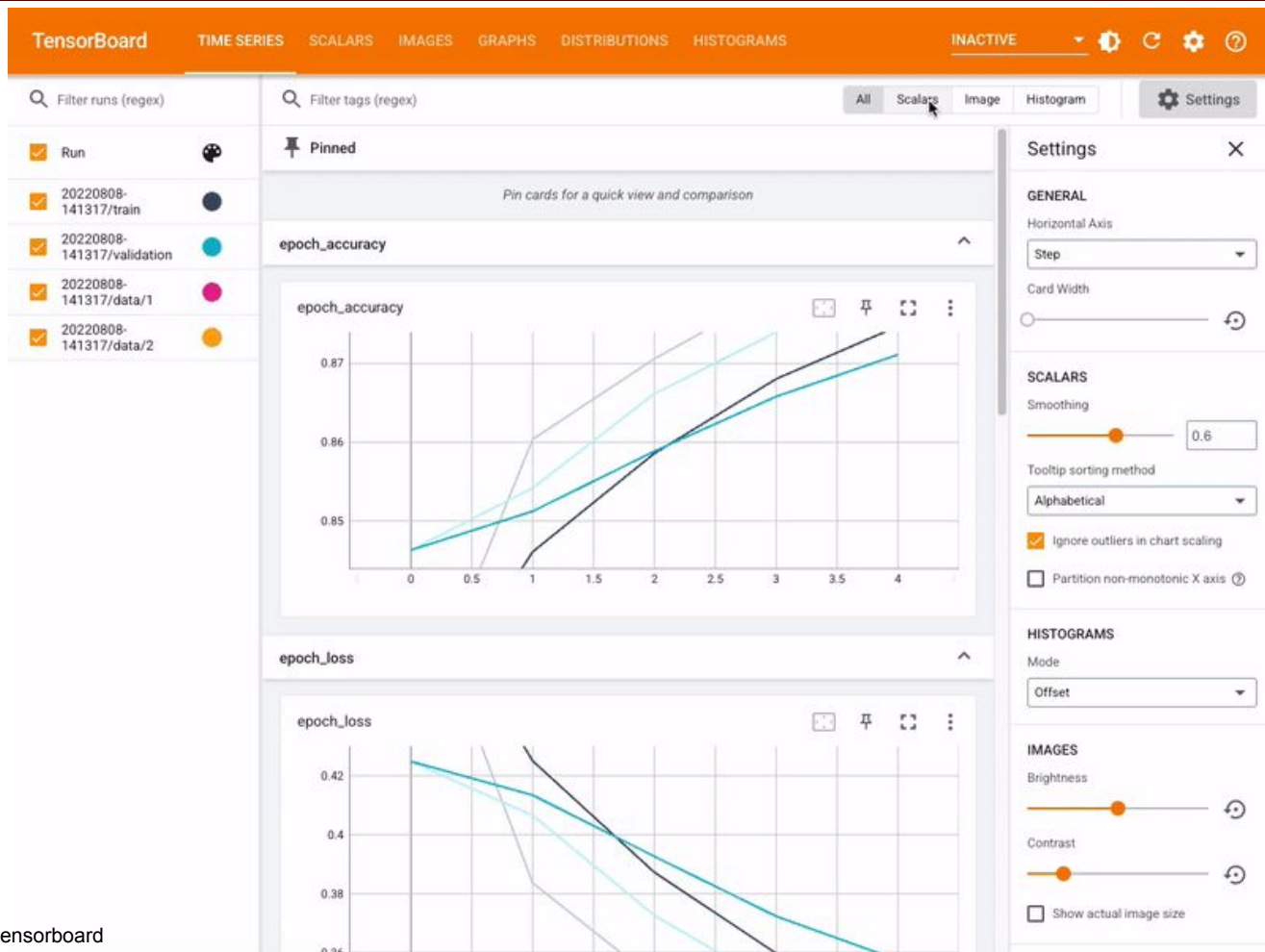
Imaging

- CryoSPARC
- ImageJ
- Jmol
- Paraview
- cisTEM

Servers

- Jupyter Notebook
- JupyterLab
- RStudio
- TensorBoard**
- Tutorials OnDemand

!! WARNING: THERE ARE ONLY NIGHTLY BACKUPS OF USER HOME DIRECTORIES. !!



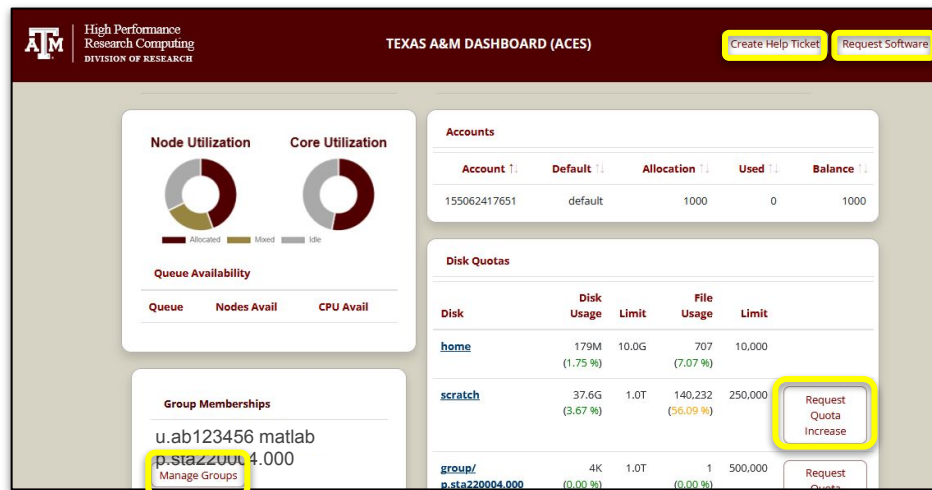
<https://www.tensorflow.org/tensorboard>

Need Help?

First check the FAQ: <https://hprc.tamu.edu/kb/FAQ/Accounts>

- ACES user Guide: <https://hprc.tamu.edu/kb/User-Guides/ACES>
- FASTER user Guide: <https://hprc.tamu.edu/kb/User-Guides/FASTER>
- Email your questions to help@hprc.tamu.edu

Remember the
Dashboard!



Help Us Help You

Tell us:

- Which cluster
- Username
- Job id(s) if any
- Location of your jobfile, input/output files
- Application used if any
- Module(s) loaded if any
- Error messages
- Steps you have taken, so we can reproduce the problem



**HIGH PERFORMANCE
RESEARCH COMPUTING**
TEXAS A&M UNIVERSITY

<https://hprc.tamu.edu>

HPRC Helpdesk:

help@hprc.tamu.edu

Phone: 979-845-0219

Take our short course survey!



HPRC Survey

https://u.tamu.edu/hprc_shortcourse_survey

Help us help you. Please include details in your request for support, such as, Cluster (ACES, FASTER, Grace, Launch), NetID (UserID), Job information (JobID(s), Location of your jobfile, input/output files, Application, Module(s) loaded, Error messages, etc), and Steps you have taken, so we can reproduce the problem.



Documentation and Training

HPRC Knowledge Base

The screenshot shows the HPRC Knowledge Base website. The header is dark red with the Texas A&M HPRC logo and a search bar. The navigation menu includes Home, Quick Start, User Guides, Software, Helpful Pages, and FAQ. The main content area is titled 'Hardware' and features a section for 'ACES: A Dell x86 HPC Cluster'. A table lists system details, and a sidebar on the right provides a 'Table of contents' for the ACES page.

ACES: A Dell x86 HPC Cluster	
System Name:	ACES
Operating System:	Red Hat Enterprise 8
Total Compute Cores/Nodes:	11,888 cores 130 nodes
Compute Nodes:	110 Intel Sapphire Rapids Nodes 17 Intel Ice Lake Nodes 1 AMD Rome Graphcore Node with 16 Mk2 Colossus GC200 IPUs 1 Intel Ice Lake Graphcore Node with 16 Bow-2000 IPUs 1 Intel Cascade Lake Node with 8 NEC Vector Engine Type 20B-P cards
Composable Components	30 NVIDIA H100 GPUs (In 15 SPR nodes, Composability Coming Soon)

Table of contents

- ACES: A Dell x86 HPC Cluster
- Compute Nodes
- System Interconnect
- Data Transfer Nodes

Knowledge Base for announcements, more hardware details, and more about the subjects we covered today.

hprc.tamu.edu/kb
hprc.tamu.edu/kb/User-Guides/ACES

Training on YouTube

High Performance Research Computing
DIVISION OF RESEARCH

Texas A&M HPRC
@TexasAMHPRC · 1.35K subscribers · 107 videos
The Texas A&M HPRC YouTube channel assists HPRC
hprc.tamu.edu and 1 more link
Subscribe

<https://www.youtube.com/texasamhprc>

HOME VIDEOS **PLAYLISTS** COMMUNITY CHANNELS ABOUT

Created playlists

- Tutorial**
Jump-Host Tunnel
Windows Powershell
3 videos
ACES: Getting Started
View full playlist
- Short Course**
Intermediate Linux
10 videos
ACES
View full playlist
- Application for a TACC Batch Account**
2 videos
Project Account Management (AMS)
View full playlist
- Using the LSF Job Scheduler on Ada**
31 videos
Previous Primers and Short Courses:
View full playlist
- Interview with LEARN President and CEO, Akbar Kara**
8 videos
BRICCs
View full playlist
- HPRC OpenOnDemand Portal**
6 videos
View full playlist

Getting Started on the ACES Cluster

Usage Policies

(Be a good compute citizen)

- It is illegal to share computer passwords and accounts
- Clusters must not be used in any manner that violates the United States export control laws and regulations, EAR & ITAR
- Abide by the license restrictions when using commercial software

hprc.tamu.edu/policies

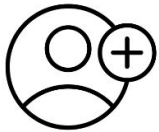
Allocations Management



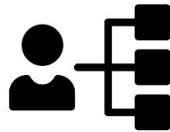
You can get allocations on both **ACES** and **FASTER** through *ACCESS*.



ACES can also be allocated through *NAIRR*.



CREATE
ACCOUNT



SELECT
OPPORTUNITY



REQUEST
ALLOCATION



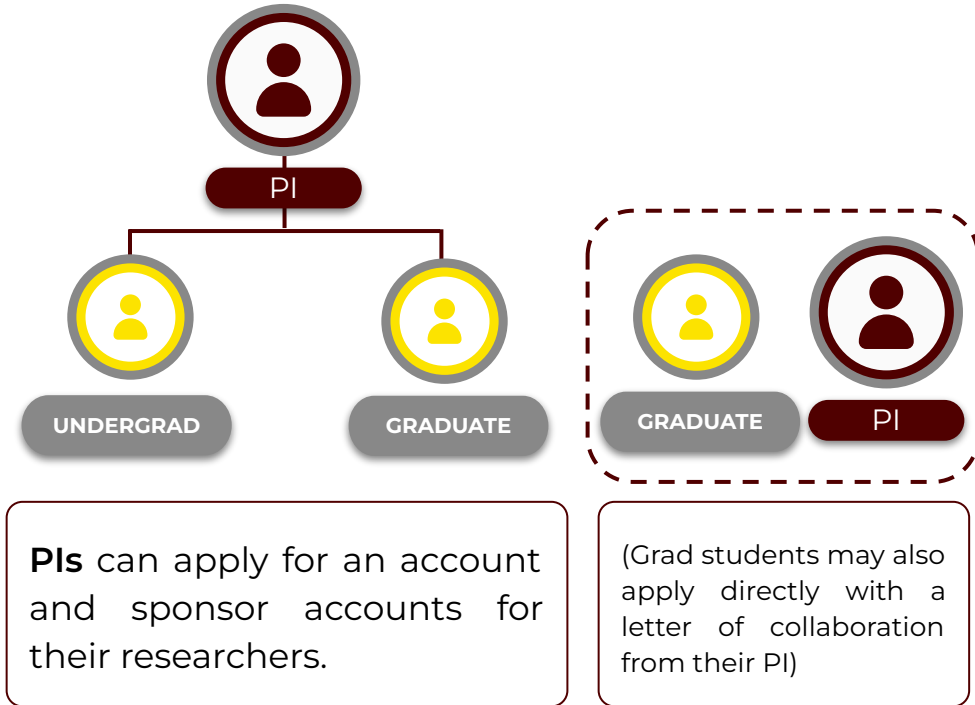
RECEIVE
CREDITS



EXCHANGE
CREDITS

Getting on ACES

- Using an [ACCESS](https://access-ci.org) account
- Application for ACES is available through ACCESS:
<https://allocations.access-ci.org>
- Email us at help@hprc.tamu.edu for questions, comments, and concerns.





Allocations Opportunities

See also:

<https://hprc.tamu.edu/policies/allocations.html>

Preparing Your Explore ACCESS Request

To request an Explore ACCESS allocation, submit:

- An overview of the research questions you intend to explore along with any details on how you intend to integrate ACCESS resources into your investigations.
- CVs for the PI and any co-PIs, in PDF format.
- Letter of collaboration if a Graduate Student, in PDF format.
- The following key data fields:
 - Title of the project
 - Keywords pertaining to the research
 - Field of science

We welcome requests from graduate students to help them complete a thesis or dissertation. Graduate students listed as PI should include a letter of collaboration from their advisor on institutional letterhead stating that the proposed work is being performed primarily by the graduate student and is separate from other funded grants or the advisor's own research. In addition, the advisor must be added to the allocation as a co-PI.

	Explore	Discover	Accelerate
Purpose	Resource Evaluations, grad student projects, small classes, etc.	Large classes, benchmarking at-scale, Campus Champions	Multi-grant programs, Collaborations, Growing gateways
Requests Accepted	Continuously; multiple requests allowed		
Review requirements	Overview	1-page proposal	3-page (max) proposal

ACES Dashboard

ACES OnDemand Portal

Files ▾

Jobs ▾

Clusters ▾

Interactive Apps ▾

Affinity Groups ▾

Dashboard ▾

My Interactive Sessions

ACES Dashboard



High Performance
Research Computing
DIVISION OF RESEARCH

TEXAS A&M DASHBOARD (ACES)

Create Help Ticket

Request Software

Node Utilization

Core Utilization



Allocated Mixed Idle

Queue Availability

Queue

Nodes Avail

CPU Avail

Group Memberships

u.ab123456 matlab p.sta220004.000

Manage Groups

Accounts

Account ↑↓	Default ↑↓	Allocation ↑↓	Used ↑↓	Balance ↑↓
155062417651	default	1000	0	1000

Disk Quotas

Disk	Disk Usage	Limit	File Usage	Limit
home	179M (1.75 %)	10.0G	707 (7.07 %)	10,000
scratch	37.6G (3.67 %)	1.0T	140,232 (56.09 %)	250,000
group/ p.sta220004.000	4K (0.00 %)	1.0T	1 (0.00 %)	500,000

Request
Quota
Increase

Request
Quota

Request help or
new software

Request higher
storage limits

Request or change user groups

D. Pham et al. (2022) PEARC '22
<https://doi.org/10.1145/3491418.3535182>



Utilities

The image shows the ACES OnDemand Portal interface. At the top, a navigation bar includes 'Affinity Groups', 'Dashboard', and 'Utilities' (highlighted with a yellow box). The 'Utilities' dropdown menu lists: 'cpuavail', 'envsavail', 'gpuavail', 'license_status', and 'venvavail'. Below the navigation bar, two overlapping screenshots of utility pages are shown.

ACES GPU Availability
This displays the CONFIGURATION of installed GPUs and the status of GPUs readily available for jobs. GPUs and GPU nodes not in the AVAILABILITY table are busy with other jobs and will be available after the job is completed.
Output generated: 2025-01-21 08:26:16

Command: `$ gpuavail`

CONFIGURATION		AVAILABILITY					
NODE TYPE	NODE COUNT	NODE NAME	GPU TYPE	GPU COUNT	GPU AVAIL	CPU AVAIL	GB MEM AVAIL
gpu.pvc:4	17	ac041	h100	8	8	96	488
gpu.pvc:2	11	ac045	h100	8	8	96	488
gpu.pvc:8	4	ac049	h100	4	3	88	360

ACES License Status
Output generated: 2025-01-21 08:26:57

Command: `$ license_status -a`

Available licenses: Abaqus, ANSYS, COMSOL, ConvergeCFD, ECLIPSE, FDTD, FEMZIP, FLOW3D, Hyperworks, Intel, INTERSECT, LS-DYNA, Madymo, Matlab, Matlab_MDCS, Metashape, MOE, Osays, PGL_compilers, StarCCM, Schrodinger.

License status for Abaqus:

License Name	# Issued	# In Use	# Available
abaqus_teaching	320	0	320
abaqus_extended_teaching	40	0	40
cse_teaching	1	0	1
euler_lagrange_teaching	1	0	1

- convenient collection of command-line tools
- check availability of gpus, licenses, and other resources