

# Overview of TACC

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Je'aime Powell, Charley Dey

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## Your instructors

*Victor Eijkhout (12:30 section)*

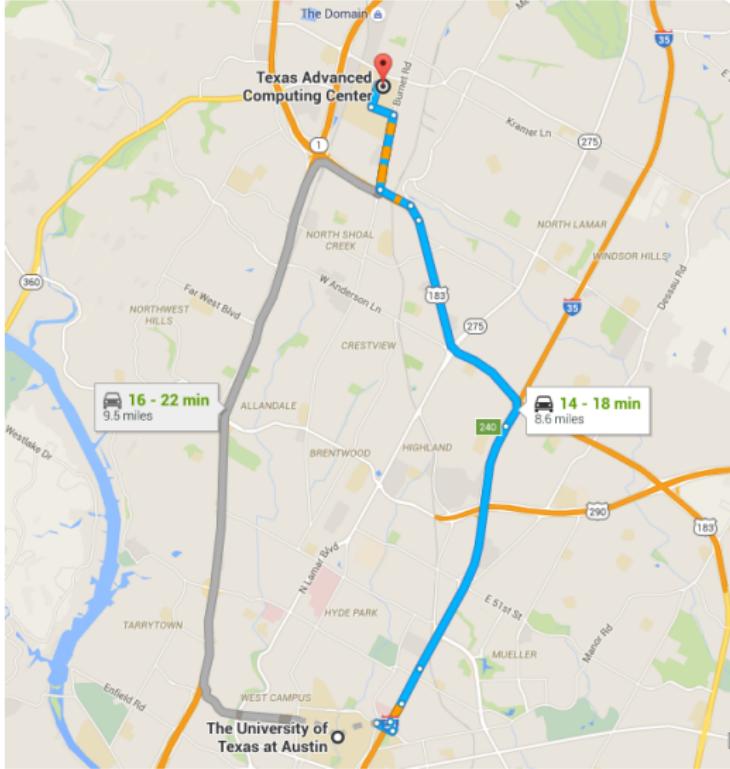
*Harika Gurram (co-instructor)*

*Je'aime Powell (3:30 section)*

*Charlie Dey (co-instructor)*

work at the  
Texas Advanced Computing Center

# So where is TACC?



# How do you get to TACC?



# Pickle Campus

Formerly Balcones Research Center,  
location of some of the best wildflowers in Austin.



# James Jarrell ‘Jake’ Pickle

- 1913–2005, congressman  
1963–1995
- US Navy during WW II
- important role in Civil Rights Act and Social Security reform



# TACC

- Started in 2001 with 10-ish people, now 130
- UT has had computing centers before; in 2001 TACC became independent unit: falls under VP for research.
- First major supercomputer in 2008: Ranger.
- Currently: Stampede2, #15 in the world and largest academic computer in the U.S.

# TACC now

- 130-ish people, divided in Systems, High Performance Computing, Computational Biology, Big Data, Visualization, Outreach (and more) groups.
- 15 platforms
- 200 public data collections
- 30 web portals with 35k users
- new 10MWatt data center
- second new building in 10 years

# Stampede1, almost gone

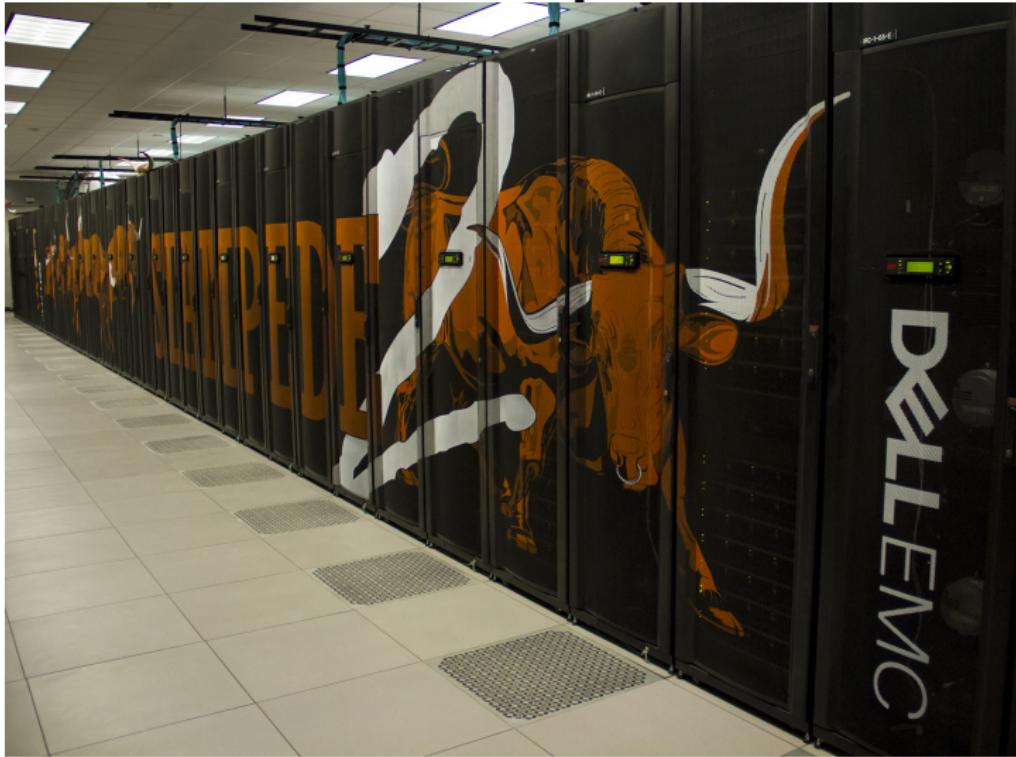


(Want to guess how much a computer costs? How long it stays operational?)

# Stampede2

- Our current biggest machine: cost \$50M
- 4000 nodes with Intel ‘Knights Landing’ Xeon phi;  
1700 nodes with two Skylake server processors.
- 75 miles of cabling, up to 4.5Mwatt power
- TACC’s machines are popular and reliable:  
Stampede1 was used by 5000 users, up 98% of the time,  
8 million jobs over its lifetime.

# Stampede2



# Stampede cabling



# Lonestar5

Our Cray



# Maverick2

GPU machine



Btw, this picture is not sideways:  
the machine hangs in a bath of HEB-\$1/bottle-mineral oil  
(ok, slightly better than that)

# Hikari



# Hikari water cooling



# Big data

- Wrangler: big data machine with lots of SSDs
- Rustler: hadoop cluster
- Stockyard: 20Pbyte spinning disc (shared between all clusters)
- Ranch: 50Pbyte of tape

# Wrangler



# Clouds

- Rodeo: mostly internal use
- Chameleon: cloud research
- Jetstream: for educational use

# Jetstream



# Catapult

Microsoft FPGA machine learning platform



# Stockyard

Mass storage

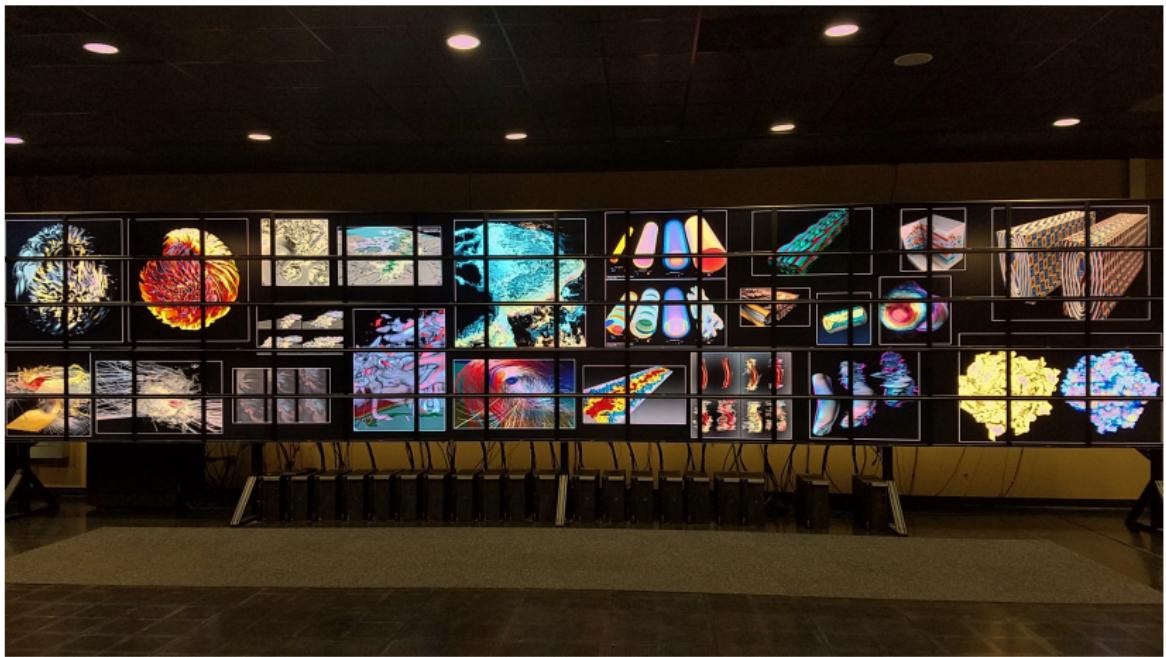


# Visualization lab (POB)

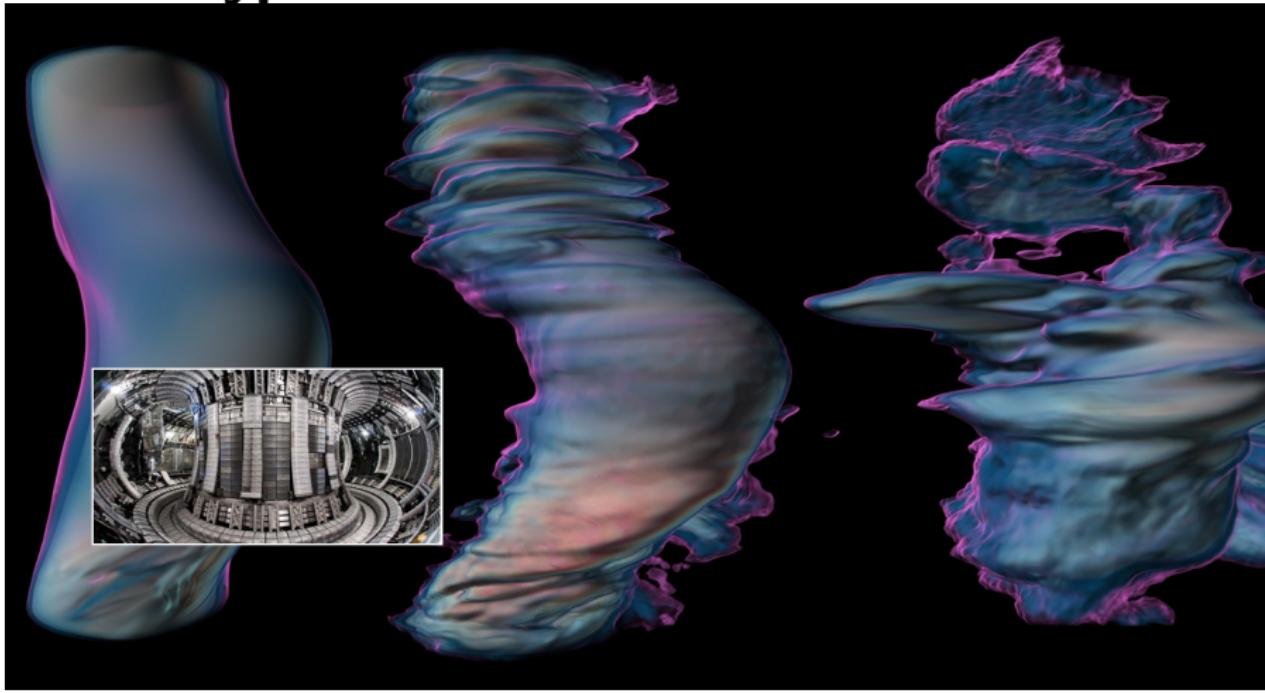


# A picture is worth a thousand...

Our graphics people can help you understand your results (and sell your research) through high quality visualization.



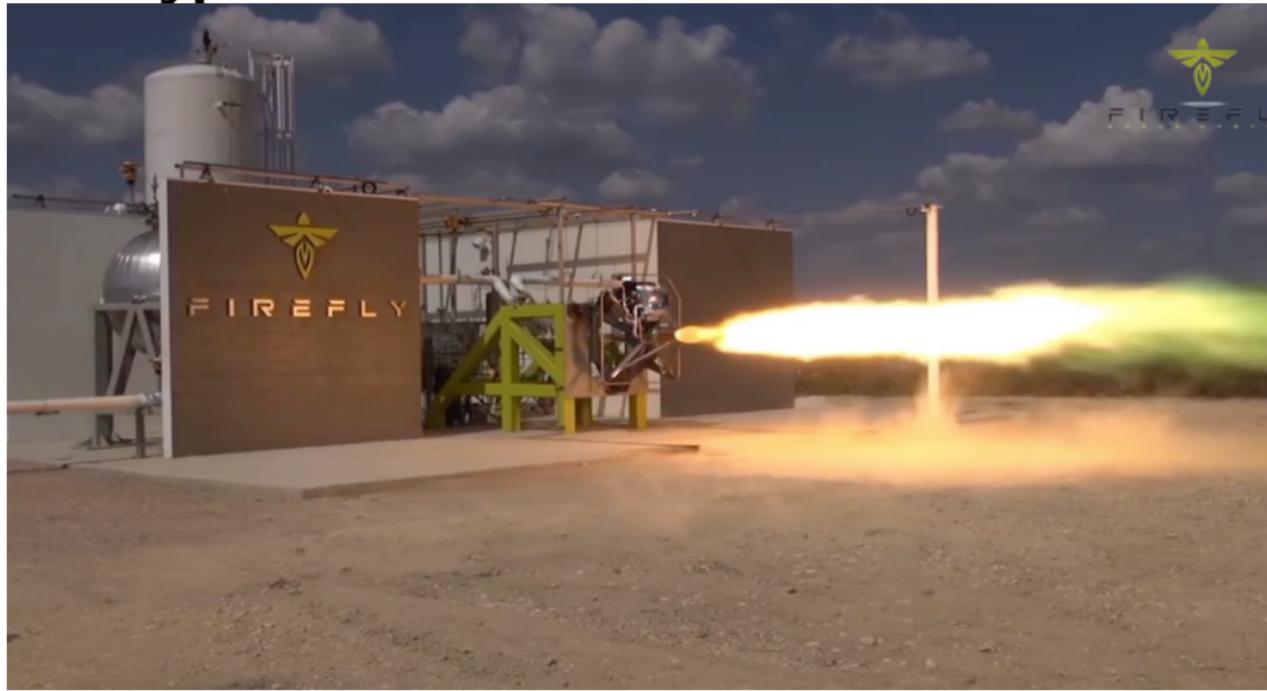
# Typical academic customer



# Non-typical academic customer



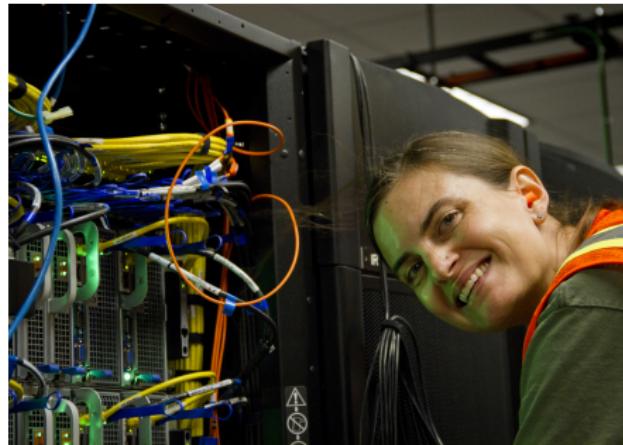
# Typical non-academic customer



# We're very hands-on



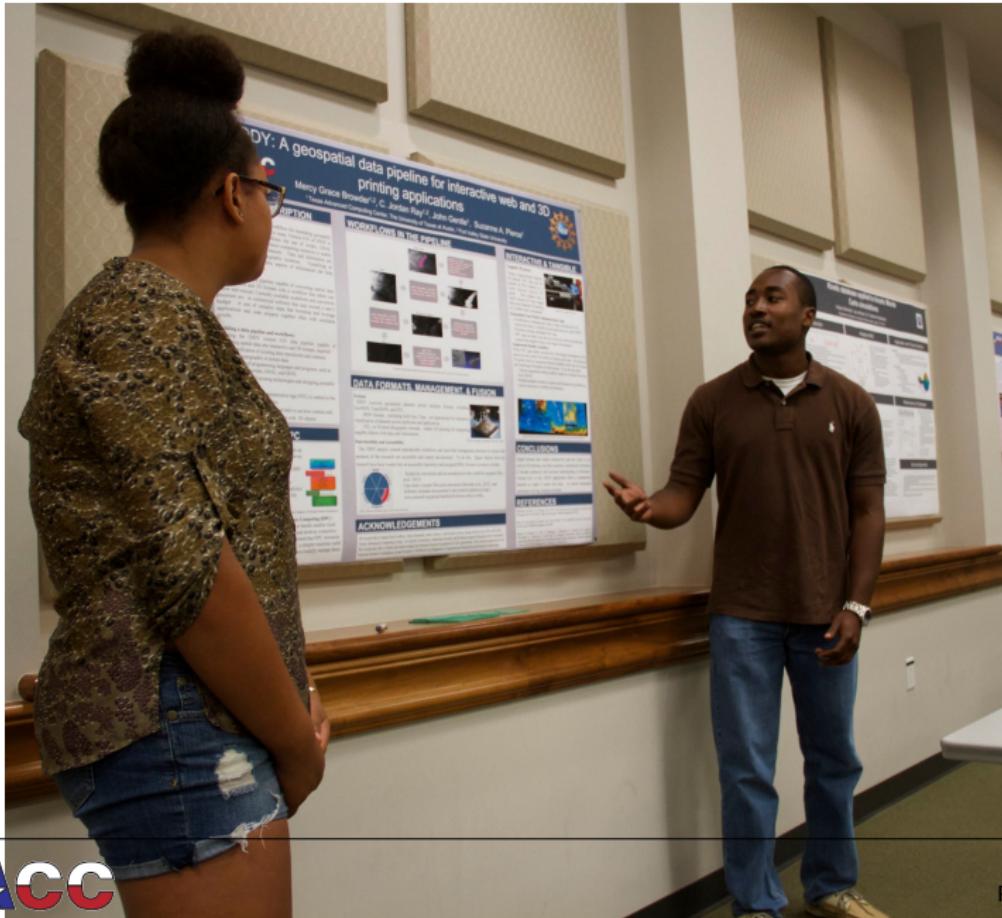
# We're very hands-on



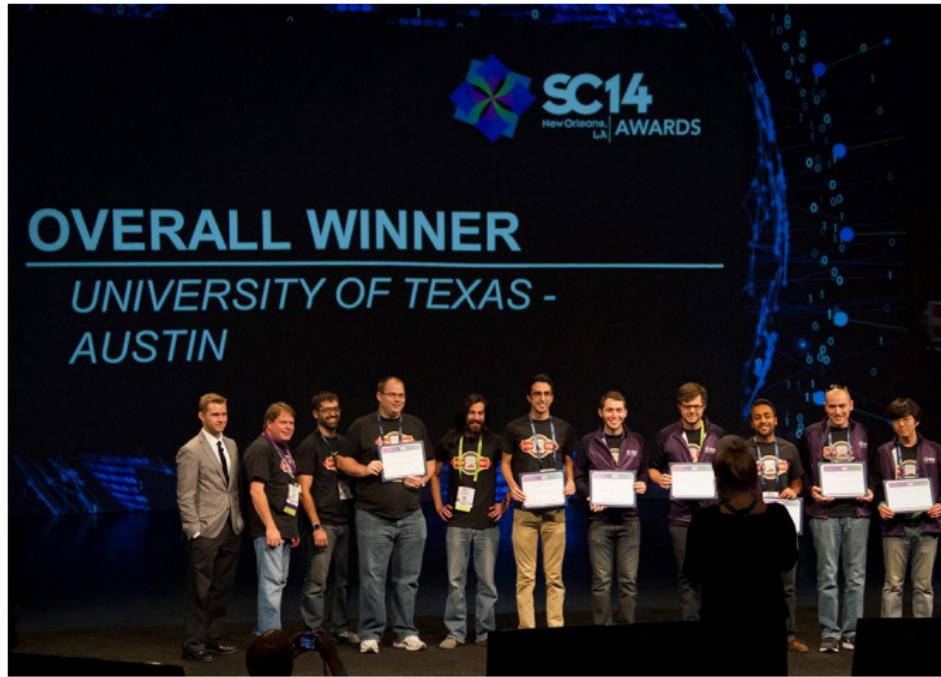
# We're very hands-on



# Student activities: REU



# Student cluster competition



# Outreach: Code at TACC



# We keep growing



# Our new building



# Breaking news!



# to be operational 2019



# TACC is a good place to be

