APS Scientific Computation Seminar Series

Speaker:
Donpaul Stephens
Founder and CEO of AirMettle
Houston, Texas

Title:
A Systems-Level Approach to Transforming 'Big Data' into 'Fast Insight'

Date:
December 11, 2023

Time:
1:00 p.m. (Central Time)

Location:
Join ZoomGov Meeting
https://argonne.zoomgov.com/j/1601444470?pwd=N1phbHZVdCtmcVR5cGh0c1Zhc0orZz09
Meeting ID: 160 144 4470
Passcode: 937918
One tap mobile
+16692545252,,1601444470# US (San Jose)
+16468287666,,1601444470# US (New York)
Dial by your location
+1 669 254 5252 US (San Jose)
+1 646 828 7666 US (New York)
+1 646 964 1167 US (US Spanish Line)
+1 669 216 1590 US (San Jose)
+1 415 449 4000 US (US Spanish Line)
+1 551 285 1373 US
Meeting ID: 160 144 4470
Find your local number: https://argonne.zoomgov.com/u/af2crdvQy

Hosts:
Mathew Cherukara and Nicholas Schwarz

Abstract:
It's 2023, we have no manned missions to Mars or flying cars. We have stadium-sized supercomputing facilities which can help us craft a witty memo when it's not making up fictional court precedents. But analyzing large data sets seems to remain largely trapped behind serial processes after moving data over constrained, expensive networking links. Storage device vendors have talked about 'computational storage' for literally decades, we are thus exploring a new approach which we'd appreciate your perspective on. We will discuss the challenges which seemed to have trapped us in a "local maximum" for processing paradigms and explain how we have applied a divide and conquer approach to efficiently store data to enable processing - when called upon in the future. We will explain the initial applications for classic record-oriented data, how we have extended this to support multi-dimensional data sets, and our proposal to extend this to enable AI inference applications for scientific and video applications (proposed with UChicago). This work was supported with government support by the NSF and NOAA.