SIGMA XI
COLUMBIA-WILLAMETTE

Solving Global Grand Challenges with High Performance Data Analytics

David A. Bader

Sigma Xi Distinguished Lecturer,
and Distinguished Professor,
New Jersey Institute of Technology

Wednesday 28 January 2026, 4:00 pm
Dundon-Berchtold Hall 130,
University of Portland

Thursday 29 January 2026, 4:00 pm
SRTC (Science Research & Training Ctr) 155,
Portland State University

The lecture is free and open to the public.
The lecture will also be remotely accessible...

Emerging real-world graph problems include: detecting and preventing disease in human populations; revealing community structure in large social networks; protecting our elections from cyber-threats; and improving the resilience of the electric power grid. Unlike traditional applications in computational science and engineering, solving these problems at scale often raises new challenges because of the sparsity and lack of locality in the data, the need for additional research on scalable algorithms and development of frameworks for solving these problems on high performance computers, and the need for improved models that also capture the noise and bias inherent in the torrential data streams. In this talk, Bader will discuss the opportunities and challenges in massive data-intensive computing for applications in computational science and engineering.

David A. Bader is a Distinguished Professor and founder of the Department of Data Science in the Ying Wu College of Computing and Director of the Institute for Data Science at New Jersey Institute of Technology. Prior to this, he served as founding Professor and Chair of the School of Computational Science and Engineering, College of Computing, at Georgia Institute of Technology. Bader is an elected Board Member of the Computing Research Association (CRA). He is a Fellow of the IEEE, ACM, AAAS, and SIAM; a recipient of the IEEE Sidney Fernbach Award; the 2022 Innovation Hall of Fame inductee of the University of Maryland's A. James Clark School of Engineering; a 2025 inductee of the Mimms Museum of Technology and Art's Hall of Fame; and the 2025 recipient of the Heatherington Award for Technological Innovation. The Computer History Museum recognizes Bader for developing the first Linux-based supercomputer which became the predominant architecture for all major supercomputers in the world. In 2025, HPCwire named Bader as one of its "35 Legends".