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Special Guest Lectures

Parallel Processors as Functional Compute Engines**James Lupo, Regis University**

(CCT/ITS Candidate for the Manager, User Services - HPC position)

Frey 307

January 29, 2009 - 02:00 pm

Abstract:

The common way of harnessing parallel processing power is via jobs run as MPI programs in a batch environment. An alternative approach, which treats the parallel processor as a backend functional compute engine, has benefit in several areas. Such servers accept a function request plus data and return the appropriate results to the user. No programming or scripting is required. Several examples will be presented. One is an MPI-based server which calculates molecular interaction energies for a virtual reality system supporting interactive molecular docking. Other examples will come from functions implemented on a custom platform built by Massively Parallel Technologies. They include servers for Matlab, target recognition, bioinformatics, and biometrics. MPT system characteristics will be discussed along with predictive tools that are used to determine how well a system will meet desired time-to-answer constraints.

Speaker's Bio:

James Lupo received his BA in Physics at the College of St. Thomas in St. Paul, Minnesota. He received his Masters in Physics at the NM Inst. of Mining and Technology. He received his Ph.D. in Physics at the University of New Mexico. His work centers on computational physics and numerical methods. He has experience covering problems in astrophysics, plasma physics, molecular dynamics, image processing, biometrics, and bioinformatics.

