



Yasmin Jackson
Senior
Alabama A&M University
Major: Mechanical Engineering

Faculty Advisor: Dr. Z. T. Deng

Program: Research Alliance in Math &
Science

Email: jacksonyy@ornl.gov

Home: yjackson03@hotmail.com

Research Area: Computing and Computational Science

The National Center for Computational Science's (NCCS) mission is to be a national leader in capability computing. NCCS computing resources are Phoenix, the Cray X1E with 1040 multi-streaming vector processors; Jaguar, the Cray XT3 with 5294 nodes each with a 2.4 GHz AMD Opteron processor; and RAM, the SGI Altix with 256 Intel Itanium2 processors running at 1.5 GHz. The NCCS computational environment is under continuous modification and a critical aspect to achieving NCCS mission is quality control of the NCCS computers. The project objective is to assist in implementing a regression test suite and regression testing for NCCS for the purpose of quality control. One such suite is Message Passing Interface (MPI) regression testing. MPI has emerged as the standard for parallel programming in the scientific community and it is critical to have a systematic method of quantifying the performance of the MPI on NCCS computers. Specifically, this involves assisting in upgrading the Jaguar computer from its present speed of 25 Teraflops to 250 Teraflops. Specific subtasks for this project include learning the programming language Python; learning about the hardware, productivity tools, and scientific applications associated with High Performance Computing (HPC); becoming acquainted with Fortran because nearly all of the scientific applications are written in Fortran; and learning the UNIX/LINUX operating system.

Research Mentor:

Dr. Arnold Tharrington
865-241-9393
arnoldt@ornl.gov
www.nccs.ornl.gov

National Center for Computational Sciences
Scientific Computing Group