Facilities, Equipment, and Other Resources - University of Wisconsin–Madison

The following are the computing and infrastructure resources that are available for this project at the University of Wisconsin–Madison.

<u>Workstations:</u> The PI has access to a variety of desktop and laptop computers (generally one desktop system and one laptop per person). Graduate students who have assigned desks are provided with thin-client computers and displays by the Statistics Department. There is also a small computer lab with six computers and a printer/scanner available to any student with a Statistics login.

<u>Network and Software:</u> The PI and graduate students have access to the Statistics and Computer Sciences AFS network and 100 GB of space. They also have access to a host of hardware and software to aid in computation-intensive tasks; various custom-built software offered ranges from common applications such as Matlab and R, to specific versions of compilers like gcc-5.4.0, and more. The software available covers nearly all research computing scenarios.

<u>Servers and HPC/HTC Clusters:</u> A Shiny Server is provided to host interactive R applications via the web, and the Department of Statistics maintains its own small-scale hybrid high performance computing (HPC) and high-throughput computing (HTC) cluster to enable students, faculty and staff access to a highly tailored computation environment that suits growing needs for teaching and learning as well as research. This cluster uses the widely adopted Simple Linux Utility for Resource Management (SLURM) as its job scheduler.

The cluster is currently made up of 13 CPU compute nodes, 1 GPU node with 8 GPUs, two submit nodes, and two storage nodes. Each compute node consists of two Intel Xeon E5-2680 v3 @ 2.50GHz CPU's and 128 GB of RAM, and with hyperthreading there are total cluster resources of 624 cores and 1.7 terabytes of RAM available. The GPU node contains 8 NVIDIA RTX 2080Ti cards. High speed Infiniband interconnects are also available for true parallel processing procedures with speeds around 40 GB/s.

The PI and graduate students also have free, standard access to the Center for High Throughput Computing. CHTC supports a variety of scalable computing resources and services for UW-affiliated researchers and their collaborators, including high-throughput computing, tightly-coupled computations (e.g. message passing interface, or "MPI"), high-memory, and GPUs.