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Research Computing Services News  Fall 2017

The Power of Collaboration
Colliding Neutron Stars Bring Together Researchers
On October 16, 2017, an international press conference was held in Washington, D.C., to tell the world of an important scientific discovery that both upheld Einstein’s theory of general relativity and ushered in a new era of astrophysical physics. Thousands of scientists from around the world collaborated to verify in reality what computational models had proven in theory.
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Community Partnership
Office of Research Development
The Office of Research Development (ORD) and Northwestern IT Research Computing’s Visualization team began collaborating to help researchers strengthen their grant proposal through the development of illustrative figures, visualizations, and graphics. ORD bridges disciplines, schools, and campus to advance the competitiveness of Northwestern’s research by designing and executing strategic, proactive, and catalytic activities aimed at securing extramural funding, with a focus on interdisciplinary programs. This Visualization consultants in Research Computing help researchers create visualizations for publication and exploratory analysis, advise on the improvement of graphics, tables, and charts to improve the clarity and impact of visualizations, and explore alternative ways to visualize data and results. Together we strive to raise the bar on research proposals from Northwestern researchers. Reach out to us if you think we can help.

Updates and Improvements
Quest Analytics Nodes
The Quest Analytics Nodes allow users to run RStudio and SAS Studio in their web browser, backed by Quest file systems and nodes with more computational resources than available on a personal computer. They are available to all Quest users with an active allocation. Learn more.

Expansion of NUworkspace
In collaboration with Weinberg College, researchers from all schools will now be able to take advantage of NUworkspace, which offers users a Windows virtual desktop with a suite of software applications. Its purpose is to provide eligible faculty, students, and staff with access to programs that may not be readily available on their current desktop/laptop computers, backed by sufficient computational resources for moderate workloads. NUworkspace is intended for interactive work, rather than scheduled or batch jobs. Learn more or request an account.

Did You Know?
- On March 30, 2018, the Social Science Computing Cluster (SSCC) will be retired. All SSCC services, including the login nodes (idon, harle, and dominic), RStudio and SAS Studio, and file storage will be discontinued.
- If you require a new login node, please request this at login.nuscc.northwestern.edu.
- Northwestern has contracts with Amazon Web Services (AWS) and Microsoft Azure for cloud services. If your research would benefit from the scalability and security of the cloud, let us help you get started with a consultation.

Technology Spotlight
Graphical Processing Units

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Graphical Processing Units (GPUs) are contributing to scientific computing more and more every day. A fundamental difference between a CPU and GPU lies in their physical architecture. A GPU typically consists of tens of cores, whereas a CPU typically includes thousands of lower speed cores. The streaming multiprocessor technologies in GPUs are optimized for efficient processing of parallel workloads. Today GPUs are utilized in many scientific fields such as deep learning, artificial intelligence, computational physics, chemistry and materials science.

The Tesla P100 is the current solution of NVIDIA for GPU accelerated computing in High Performance Computing centers. These GPU accelerators enable a single node to replace half a rack of commodity GPU nodes in a broad range of applications (see figure) consequently boosting throughput and saving money for HPC and hyperscale data centers.

From the beginning of 2017 Base Tesla P100s have been introduced to large HPC centers such as XSEDE and commercial cloud services. Northwestern’s high performance computing cluster, Quest, has also added additional GPU capability including P100 (GPU) nodes this summer. Those nodes will support computational research in material science carried out by the team led by Dr. Choea de la Cruz.

Featured Researcher

Department of Economics assistant professor Dr. Gaston Iannos uses complex and computationally demanding models to study health sector market forces affecting consumer behavior. On Quest, Prof. Maron Dephino’s large databases and algorithms that quantify and describe a matrix of individual consumer choices to help determine implications on healthcare policy strategies in industry and government.

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Featured Staff Member

Janna Nugent

Janna began working in the intersection of biology research and computer science at the University of Chicago, where she received her MS in Computer Science in 2010. Before coming to Northwestern in 2010, Janna spent facilitating genomics research at Northwestern by helping researchers use computational methods in high-performance computing on Quest’s genomics computing cluster. Fostering Northwestern’s genomics community on the genomics lab bench and offering office hours on the Chicago campus. In addition to helping researchers use the genomics computing cluster, Janna teaches Python, Unix command line, Github and other research topics. If you’d like help with a genomics pipeline, please contact Janna at janna.nugent@northwestern.edu or stop by and say hello after one of her classes in CS.

Researcher’s Toolkit, or Computational Skills for Researchers.

Research Computing Services is Moving

Beginning Monday, October 23rd Research Computing Services will be located in Suite 2220 at Mudd Hall, 2233 Tech Drive, Evanston.

Upcoming Training

Researcher’s Toolkit - Evanston campus

Sharing Your Research and Data with Arch, 10/25 3:30-5:30pm Register

Introduction to LaTeX, 11/3 3-4:30pm Register

Introduction to GIS, 11/29 3-4:30pm Register

Computational Skills for Researchers - Evanston campus

MPI/OpenMP, 10/24 from 3pm Register

Data Visualization with Python, 11/15 3-6pm Register

Computational Skills for Informatics - Chicago campus

Introduction to the Command Line/Bash, 10/26 3:00 - 4:30pm

Introduction to Bash Programming, 11/2 3:00 - 4:30pm

Introduction to High Performance Computing on Quest, 11/9 3:00 - 4:30pm

Learn more or register

There are still seats available for online training with Data Camp.

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