

# GOERGEN INSTITUTE FOR DATA SCIENCE

## HIGH PERFORMANCE COMPUTING AND DATA ANALYTICS RESOURCES



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The University of Rochester's computational power adds up. Its aggregate capacity equals 420 teraflops or 420 trillion calculations per second—the equivalent computing power of more than 20,000 laptops. The research facilitated by all this power ranges from the study of young stars in distant galaxies to simulations of the human heart to the exploration of ancient communities and beyond.

The Goergen Institute for Data Science is committed to having the right people, computational infrastructure, and technology in place to serve our researchers and partner organizations and help them use and apply computation and data analytics to their work.

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### Resources

#### **Health Sciences Center for Computational**

**Innovation:** HSCCI is a partnership between the University and IBM to create one of the most advanced computer networks dedicated to health research. The centerpiece of HSCCI is the IBM Blue Gene/Q—one of the world's most powerful high-performance supercomputers.

#### **Center for Integrated Research Computing:**

CIRC is a University-wide center that provides access to hardware, software, training, and support needed in all areas of research. It serves more than 900 faculty, research staff, postdoctoral scholars, and undergraduate and graduate students from across the University.



Jim Baker, a physics PhD student (right), conducts research in the University's VISTA Collaboratory. His research produces a large number of results that all need to be analyzed together. The display wall in the VISTA Collaboratory lets him view and manipulate the involved data sets simultaneously in one visual workspace.

**VISTA Collaboratory:** The Visualization-Innovation-Science-Technology-Application (VISTA) Collaboratory facilitates the visualization and collaborative exploration of large and complex datasets in order to analyze, address, and solve problems. Located on the River Campus's Carlson Science and Engineering Library, VISTA features a large display wall, video conferencing capabilities, and a dedicated link to the University's supercomputing infrastructure along with other technological resources.

## Technology

**Blue Gene/Q:** IBM's Blue Gene/Q holds the potential to open new doors of inquiry by allowing scientists to sift through and analyze huge volumes of data and create complex models and simulations that would previously not have been possible. Rochester scientists are using it to develop vaccines and to study brain injuries and cardiac disease. With its water-cooling technology, the Blue Gene/Q is one of the world's most energy-efficient supercomputers.

**BlueHive:** BlueHive is the University's primary Linux cluster for running demanding computations. It offers almost two petabytes of configurable raw disk within a parallel file system, which facilitates the most data-intensive applications. To put this in perspective, one petabyte could store the complete human genome—which consists of three billion base pairs—of every person in America.

## For more information, contact

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