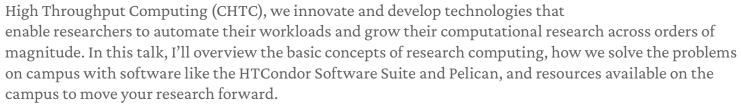# Dreaming Big: Using Research Computing to Advance Your Science

Brian Bockelman, PhD
Associate Scientist
Morgridge Institute for Research

What happens when the scientific problem you want to tackle outgrows your laptop? Just as scientists make the progression from pen and paper to spreadsheet to programming languages, we reach for different techniques and approaches to utilize computing at a large scale for our endeavors. At UW–Madison, we encourage researchers to "think big:" What problems would you tackle if you had an infinite amount of computing capacity? Given the investments at the local and national scale, hardware is rarely the limit; rather, the limit is automation. Within the Center for High Throughput Computing (CHTC), we innovate and develop technologies that enable researchers to automate their workloads and grow their computational research across orders of magnitude. In this talk, I'll overview the basic concepts of research computing, how we solve the problems on campus with software like the HTCondor Software Suite and Pelican, and resources available on the campus to move your research forward.

ABOUT the SPEAKER

Dr. Brian Bockelman joined the Morgridge Institute for Research as an Associate Scientist in 2019, focusing on enabling Research Computing across the institute, on the University of Wisconsin–Madison campus, and beyond. Dr. Bockelman has a joint PhD in Mathematics and Computer Science from UNL (2008). While his PhD work was on computational approaches for solving PDEs, he has since focused on advancing the state of Research Computing and Distributed High-Throughput Computing (DHTC). In 2008, Bockelman began collaborating with the OSG Consortium and today serves as the Technology Area Coordinator. The OSG, led by Prof. Miron Livny, is the nation's flagship platform for DHTC, enabling researchers across a multitude of disciplines to use their distributed hardware to deliver over 2 billion compute hours per year to science. Recently, Bockelman has been working on the challenges of effectively delivering data to compute capacity. This has led to the Pelican project, a $7M investment by the National Science Foundation, led by Bockelman, to expand and improve the Open Science Data Federation, which aims to connect datasets across all of open science.

Monday, December 4 at Noon
1003 Engineering Centers (Tong Auditorium)