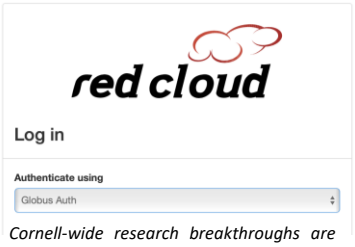
Center for Advanced Computing (CAC)

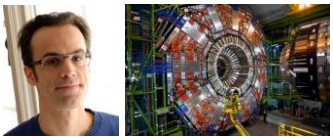
FY24 Research & Education Impact

Research Impact

- **431 research projects**
- **1,381 faculty and student users** from Cornell's colleges, schools, research centers, institutes, and labs
- **8,598,394 hours computing on Red Cloud.** Virtual clusters in the cloud are available. Exploratory accounts are free for Cornell faculty, staff, and students.
- **34 private faculty compute clusters** hosted and maintained for Anthropology, Applied Physics, Astronomy, BEE, BioHPC, CCSS, CBE, C&CB, CEE, CS, Economics, Human Ecology, Johnson, MAE, MSE, Nutrition, Physics, Plant Science, Praxis, PRO-DAIRY, Weill Cornell Medicine
- **11,912 hours of consulting** provided to researchers
- **543TBs Red Cloud storage/878TBs archival storage** utilized



Cornell-wide research breakthroughs are powered by Red Cloud's 3,000 CPUs plus GPUs. Free trial accounts are available.



Physics professor Peter Wittich is advancing software at CERN as a lead researcher for the Institute for Research and Innovation in Software for High Energy Physics (IRIS-HEP). CAC is a team member providing expertise in parallelization and performance.

Grant Impact

- **New NSF grants:** AI for Civil and Environmental Engineers ($7M Co-PI), Orchestration of Multi-Messenger Astrophysical Observations ($3.6M Co-PI), HPC-ED: Federated Training Repository Pilot ($300K PI), Pathways to Equity in Advanced Computing Access ($283K Co-PI)
- **Other grants:** I-WRF: Weather Research & Forecasting Model ($2M PI), IntBIO: Pollinator-Pathogen Dynamics ($433K PI), Multi-Host Parasites (Entomology PI McArt/CAC Co-PI), NANOGrav (Astronomy Co-PI Cordes/CAC CI Lead), IRIS-HEP: High Energy Physics (Physics Lead Wittich/CAC Software)
- **Subawards:** Training partner for NSF's Leadership-Class Computing Facility (LCCF), Jetstream2 Regional Cloud
- **Advisory:** Empire AI Technical Advisory Committee

CAC was selected as training partner for the NSF's Leadership-Class Computing Facility. LCCF will deploy a supercomputer in 2026 with 10 times today's performance (100 times for AI). CAC also leads a pilot project to improve the sharing and accessibility of HPC training and education across the nation.

Education Impact

- **16 research computing webinars** delivered; 1,037 attendees
- **12 Cornell Virtual Workshop** topics updated/created
- **35 instructional videos** available on demand (CAC YouTube)
- **3 eCornell Certificates** maintained by CAC instructors: Python for Data Science, Data Science with SQL & Tableau, Data Visualization
- **Classroom teaching** (ASTRO 6531); postdoc/student mentoring

CAC's Adam Brazier, Chris Myers, and Ben Trumbore are eCornell instructors whose certificate programs have generated over $7M in revenue for eCornell.

The Center for Advanced Computing (CAC) is a core facility of the Office of the Vice President for Research & Innovation (OVPRI). CAC services impact Cornell researchers by accelerating insights and discovery, strengthening grant proposals, and helping researchers meet grant deliverables faster and more effectively. Contact CAC today to explore how we can assist you: **Rich Knepper, PhD, CAC Director, 607-255-0313, rich.knepper@cornell.edu**. Learn more at **www.cac.cornell.edu**.