

RESEARCH & CLOUD COMPUTING

SUPPORT | TRAINING | HARDWARE | SOFTWARE

SUPPORT

We support the computing & data needs of researchers, so you can focus on research!

Technical User Support

- Solutions architecture: Matching platforms, frameworks, algorithms, software to research problems
- Troubleshooting / debugging of user software
- Office hour every Tuesday 12:30-1:30pm

Platform and Software Administration

- Hardware & virtual environments: provisioning, maintenance, troubleshooting, upgrade
- Software: Installation, management, troubleshooting, optimization
- Monitoring: Continuous monitoring to ensure smooth operation

TRAINING & ENGAGEMENT

Training, Education, Outreach

- One-on-one mentoring, onboarding
- Workshops on topics including Intro to HPC, Google Cloud, Python, R, and others
- Support for grant writing (computational resources & expertise)

HARDWARE & PLATFORMS

On-Prem HPC Clusters

RCC operates two on-premises high-performance computing (HPC) clusters, Wahab and Turing, featuring an aggregated total of ~9,500 Xeon CPU cores, >80TB RAM, ~130 Nvidia GPUs (mostly V100 and A100), up to 100 Gbps Infiniband network fabric for efficient distributed parallel computing. RCC also provides 3 PB research mass storage and ~300 TB scratch storage connected to these HPC clusters. These machines are available to all campus faculty, researchers, and students for research and teaching activities.

Cloud HPC Cluster

RCC operates Waterfield, an HPC cluster based on Google Cloud Platform (GCP) featuring state-of-the-art AMD EPYC & Intel Xeon CPUs, as well as newer Nvidia GPUs (RTX Pro 6000, H100, H200, B200) to expand the compute capacities available to researchers.

Scalable Cloud Computing

Through GCP, we can provide researchers access to scalable computing capabilities, such as virtual machines, container runtimes, cloud-native and managed services, and AI tools.

Regulated Research Computational Environment

The RRCE and RRHPC are highly secure computing & data environments to enable research with regulated data sets such as Controlled Unclassified Information (CUI). These environment supports complex workloads including AI/ML with Nvidia A100 and H100 GPUs.

REDCap: Secure Data Collection

RCC now offers REDCap, a secure web application for building and managing online surveys and databases. This environment supports regulated research data, including PHI and HIPAA.

CONTACT US!

RCC Website



odu.edu/hpc

Email



rcc@odu.edu

Office Hour Zoom Meeting



Every Tuesday 12:30 to 1:30 p.m.
Meeting ID: 917 9884 0811 / Passcode: 676099

SOFTWARE & CAPABILITIES

Artificial Intelligence @ Google Cloud

Gemini Enterprise Agent Platform (formerly Google Vertex AI) includes advanced AI capabilities (Gemini Enterprise, Model Garden, AI Agents). These capabilities are often used in conjunction with other GCP platforms such as Colab Enterprise and Cloud Run. RCC team provides tailored solutions that match researchers' needs.

Data Analytics & Machine Learning

- Jupyter & RStudio (on-prem & cloud)
- Google Colab Enterprise & Workbench (cloud)
- Pandas, Scikit-learn, TensorFlow, PyTorch, Transformers
- Visualization: Blender, VTK, ParaView

Software Development

- Programming languages & frameworks (Python, R, Matlab, Java, C++, C, Fortran, CUDA, VS Code, ...)
- Parallel programming & high-performance libraries (MPI, OpenMP, MKL, Boost)

Scientific Software

- (Bio) molecular sciences: GROMACS, AMBER, Gaussian, Espresso, AlphaFold.
- Mechanics & fluid dynamics: OpenFOAM, SU2.
- Bioinformatics: STACKS, dDocent, ...
- ...and many more!