

Eligibility

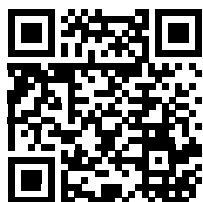
- Undergraduate students and recent graduates
- Majoring in a field related to or have some relevant experience in **computer science, computer engineering, information science/technology, & relevant fields**
- Beginner to intermediate understanding of the Linux operating system and command line



The Programming and Runtime Environments Team with our one-million-core supercomputer, Trinity.

To apply, send the following materials to [super@lanl.gov](mailto:super@lanl.gov):

1. current resume
2. unofficial transcript, including GPA
3. cover letter describing (a) your professional interests, experience, and goals; (b) why you are interested in the Supercomputer Institute; and (c) what you hope to contribute to our team environment



"[Instructor] was an outstanding instructor and I could not have expected anything better." — 2019 intern

send questions and application materials to:

[super@lanl.gov](mailto:super@lanl.gov)

[clustercomputing.lanl.gov](http://clustercomputing.lanl.gov)

While no clearance is required for this internship, interns have the potential to work toward a regular position in a LANL division that will require a Q Clearance. To obtain a Q Clearance, an individual must be at least 18 years of age; U.S. citizenship is required except in very limited circumstances and must meet eligibility requirements for access to classified matter. See DOE Order 472.2 for additional information. Applicants selected will be subject to a Federal background investigation.

# 2022

Los Alamos National Laboratory  
High Performance Computing Division

## Supercomputer Institute

Technical summer program offering hands-on experience building and operating state-of-the-art and next-generation compute clusters, high-speed networks, extreme-scale filesystems, containers, security, and more.



Instructor (left) and intern diagnosing compute node hardware



Interns cabling their mini-supercomputer.

*“My expectations for this boot camp were blown away and I have already recommended this boot camp / internship to people who had never even considered LANL prior ....” — 2019 intern*

### Program overview

The Supercomputer Institute is an 11-week, hands-on technical internship for people interested in the growing field of high performance computing.

**Bootcamp phase.** During the first 3 weeks of the internship (the "bootcamp phase"), small teams will build from scratch, configure, test, and operate a small cluster. This bootcamp includes classroom instruction, hardware work in the machine room, system administration work in the office, and safety training.

**Projects phase.** After bootcamp, teams will work under the guidance of HPC Division staff mentors on applied research and development projects that address real challenges currently faced by the division. Each team will present their project in front of their peers at the end of the summer.



LANL scientists working in our CAVE advanced visualization facility.

### Recent project titles

*Troubleshooting and analyzing network booting challenges using a Raspberry Pi testbed*

*Evaluating container image distribution methods for HPC using Charliecloud*

*Injecting systemic faults to evaluate risks of a multi-cluster Slurm database*

*Performance studies of parallel erasure coding on clustered micro storage servers*

*Analyzing Frameworks for HPC Systems Regression Testing*

*A Virtual Cluster Monitoring Toolkit for Bottleneck Analysis*



High Performance Computing Division staff working on a supercomputer called Luna.

### Professional development

In addition to the technical portion of the program, interns also participate in professional development work and networking opportunities, including:

- Teamwork and professional collaboration
- Resume writing and evaluation
- Technical poster/presentation design and public speaking
- Technical seminars on current HPC topics. Past seminars include high-speed networking, Linux containers, parallel filesystems, facilities, and more.
- Science lectures given by staff from across the Laboratory, from how the Mars Rover works to machine learning/AI to black hole collisions.
- Opportunities to sign up for tours of our world-class facilities, including the magnet lab, particle accelerator, million-core supercomputer, and ultra-cold quantum computer.

***Join the Institute and gain unique skills attractive to HPC centers and other world-class IT/computing facilities!***