2017 Summer Undergraduate Program for Engineering Research (SUPER)
Internship Opportunity

Tracking Code
17063

Job Description

SUPER 2017 RECRUITMENT

The National Center for Atmospheric Research (NCAR) Earth Observing Laboratory (EOL) seeks undergraduate students to participate as summer engineering interns in the 2017 Summer Undergraduate Projects in Engineering Research (SUPER) program. The 2017 SUPER program begins *May 21, 2017* and ends *August 11, 2017*. The deadline to apply to this internship position is *January 13th 2017*.

Formed in 2005, the Earth Observing Laboratory (EOL) is one of the seven laboratories of NCAR, the National Science Foundation’s Federally Funded Research and Development Center. As the successor of NCAR’s Atmospheric Technology Division (ATD), the mission of EOL is to provide leadership in observing facilities, field project support as well as research and data services needed to advance the scientific understanding of the Earth system.

EOL manages the majority of NSF’s Lower Atmosphere Observing Facilities (LAOF) and deploys them in support of observational field campaigns, ranging from single investigator projects to large complex campaigns that involve multiple investigators, agencies, and platforms, nationally and internationally. EOL deploys its systems for research by scientists from universities, NCAR, and government agencies, as well as for education. An integral part of EOL’s mission is to develop the next generation of LAOF and to provide management and archiving of data from past supported campaigns.

In order to ensure progress in the atmospheric sciences, EOL supports a wide-range of research areas within the Earth system science, ranging from microscale to mesoscale to climate process studies, and employs LAOF platforms and systems that reach from the surface of the Earth to the lower stratosphere and beyond.

For more information on EOL please see the [Join Our Team page on EOL’s website](https://www.ucar.edu). Some projects may require that the intern be (a) a U.S. citizen; (b) lawfully admitted for permanent residence in the United States; or (c) a protected individual as defined by 8 USC1324b(a)(3).

Research

Interns work hands-on with NCAR/EOL engineers on atmospheric observing systems and developments, including radar, lidar, and sounding systems and associated software developments. Interns may spend part of the summer participating in a field deployment, operating and/or supporting one or more EOL observing systems.

Past intern projects for this program have included:

- Document, redesign and create engineering drawings of instrumentation
- Create an object-oriented and networked software framework for command and control operation of the Giant Nuclei Impactor (GNI) analyzer imaging and analysis instrument
- Developing a set of software programs to convert legacy observational data to modern usable formats
- Testing electronic components for the Mobile 449 MHz wind profiler system to verify performance limits and documenting results for use in system integration
- Upgrade and documentation of the Atmospheric Sounding Processing Environment (Aspen) software, used for analysis and quality control (QC) of sounding data.
- Design of an aircraft antenna fairing, including certification documentation
- Development to automate use of a black-body calibration system
- Multiple-camera image ingest, storage, and display system for the NCAR/NSF Gulfstream V aircraft
- Amplifier design and test for the 449 MHz wind profiler
- Development of Linux base kernel-mode laser driver / sampling system
- Development of a web aggregator to be integrated into the EOL field catalog
- Live data monitoring via quality control metadata
- Redesign of the automated giant nuclei impactor system
- Multilayer radome design and experimental characterization of scattering and propagation properties for atmospheric radar applications

Reports and Presentations
Each intern prepares and gives an oral presentation on their work at the conclusion of the summer program.

Community and Professional Behavior
SUPER interns work and live together and are part of a larger community of UCAR and NCAR summer interns. SUPER interns are expected to contribute positively to the UCAR/NCAR community and to conduct themselves in a manner appropriate to a professional environment. Interns are expected to fully participate during normal office hours, during SUPER functions, and while on SUPER-funded travel.

SUPER interns reside together in EOL-paid apartments in Boulder, CO; note that projects at EOL’s Rocky Mountain Metropolitan Airport (RMMA) will require the intern to either have their own car or use public transportation. SUPER interns will receive an hourly wage, and will receive travel support if traveling to Boulder for the internship. SUPER interns who may be local to the Boulder area and who are leasing their own housing may receive a pre-determined stipend to assist with leasing costs. Note that housing benefits are considered taxable income.

Knowledge, Skills and Abilities
- Basic knowledge, through coursework, of engineering concepts
- Good problem solving skills
- Ability and willingness to learn and use scientific and engineering computing tools and programs
- Ability to work with diverse staff
- Good oral and written communication skills
- Ability to work full-time (40 hours per week) in Boulder, CO, during the 12-week summer program
- Ability to interact with mentors and peers in a manner that supports collaboration and inquiry
- Working knowledge of basic office and communication software (e.g., email clients)
- Ability and willingness to work within guidelines and policies of the organization and assigned work groups

Decision-Making and Problem Solving
Interns are expected to solve basic problems independently, to exercise judgment on when to ask mentors for help, and to consult with mentors on larger problems or community related issues.

Education Requirements
Currently enrolled as an undergraduate in an accredited US university or college with major/concentration in any of the following disciplines:
- Computer Science
- Mechanical Engineering
- Electrical Engineering
- Aerospace or Aeronautical Engineering
- Software Engineering
- Optical Engineering
- Another Engineering discipline

Other Requirements
To be considered for the internship, applicants must submit a single PDF file that includes:
1) A not-to-exceed one-page Statement of Interests/Cover Letter describing
   1. Their technical interests and skills,
   2. Why they are interested in SUPER, and
   3. What they expect to gain if selected; and
2) A resume

This job will close on January 13th 2017.

Desired but not required
The ideal candidate will have completed the equivalent of two years of college; have some basic research and programming experience; and have a cumulative GPA of 3.0 or higher (on a 5.0 scale).
The University Corporation for Atmospheric Research (UCAR) is an equal opportunity/equal access/affirmative action employer that strives to develop and maintain a diverse workforce. UCAR is committed to providing equal opportunity for all employees and applicants for employment and does not discriminate on the basis of race, age, creed, color, religion, national origin or ancestry, sex, gender, disability, veteran status, genetic information, sexual orientation, gender identity or expression, or pregnancy.

Whatever your intersection of identities, you are welcome at the University Corporation for Atmospheric Research (UCAR). We are committed to inclusivity and promoting an equitable environment that values and respects the uniqueness of all members of our organization.

**Job Location**
Boulder, Colorado, United States

**Position Type**
Intern

To apply: [https://ucar.silkroad.com/e postings/index.cfm?fuseaction=app.jobinfo&jobid=218078&version=1#.WFGAcm94n50.gmail](https://ucar.silkroad.com/e postings/index.cfm?fuseaction=app.jobinfo&jobid=218078&version=1#.WFGAcm94n50.gmail)

If there are any questions regarding the application process, please contact Courtney Gibson at cgibson@ucar.edu or 303-497-8722.