Colorado Space Grant Consortium

Winter 2017 Positions

Space Grant is seeking students from Aero, CS, EE/ECE, ME, ATOC, the sciences and engineering or anyone with an interest in gaining real world hands-on experiences.

All levels of experience from Freshman to Graduate students should apply. More positions will be posted in January.

http://spacegrant.colorado.edu/boulderstudents/howtogetinvolved

The current opportunities are with:

Pre-Interest with LMCO and DigitalGlobe

The Colorado Space Grant Consortium

Computer Systems – Build an understanding of how computer systems work. Learn how Linux and Windows servers can work together.

Lab Team – Help build tools for Space Grant student teams and help bring knowledge and skills to SG Projects. This interdisciplinary team is looking for enthusiastic students. We will explore ideas around building a CubeSat program.

Student Recruiting – Be a team member who learns new skills and who will then teach others those skills which are applicable to any engineering or science field.

RocketSat – Be a team member to design a sounding rocket payload that will go 72 miles into space. This team is designing a payload, in collaboration with Lockheed Martin, which will measure the density of the ionosphere through utilizing radio frequency engineering. They are currently working on bringing the design to a Critical Design Review level by spring semester and the payload will be flown in summer 2018. Must be a US Citizen.
Digital Globe
Deploy Team members are needed starting May 2018 to November 2018. Interviews will start in March or April 2018.

On-Call Student Satellite Calibration Technician

About the Company
DigitalGlobe is a leading provider of commercial high-resolution earth observation and advanced geospatial solutions that help decision makers better understand our changing planet in order to save lives, resources and time. Sourced from the world’s leading constellation, our imagery solutions deliver unmatched coverage and capacity to meet customers’ most demanding mission requirements. Each day customers in defense and intelligence, public safety, civil agencies, map making and analysis, environmental monitoring, oil and gas exploration, infrastructure management, navigation technology, and providers of location-based services depend on DigitalGlobe data, information, technology and expertise to gain actionable insight. DigitalGlobe is a public company listed on the NYSE as DGI.

Summary
Assist remote sensing scientists at DigitalGlobe in field work to calibrate Earth observing satellites. Gain hands-on experience in the operation of field equipment for satellite radiometric assessment including field spectrometers, Sun photometers and weather instruments. DigitalGlobe is looking for students to perform on-call scientific field work. Field deployments can occur up to four times per week. The team will start in September and work will continue through mid-November. Deploys will typically begin at 9:30 am and end anywhere between 2:00 – 4:00 pm (dependant upon work to be done that day). We are seeking students who can ideally commit to 2-4 days a week during a normal school week this fall. You can pick which days you want to work depending on your schedule from a list of potential dates given 2-4 weeks in advance. This way you can schedule your availability around classes and mid-term weeks for instance. If the weather or sensor availability prevents a deployment, you will be notified 24-hours before the attempt of the cancelation. If a deploy is canceled last minute (e.g. that morning, due to weather), you will receive 2 hours of pay. Hands-on training will be provided in the field.

Responsibilities
- Deploy and operate scientific field equipment
- Potential for handling and assessment of field data
- Be on-call for 9:30AM to 4:00PM work up to 4 days a week.

Job Requirements
- Must be able to pick up moderately heavy equipment
- Must be able to work outdoors for extended periods of time
- Must be reliable and punctual
- Undergraduate and graduate-level students encouraged
- Must be a US Citizen

Compensation
Competitive starting pay rate with potential increases based on experience, performance and tenure.

Contact
Michele Kaeser at DigitalGlobe (mkaeser@digitalglobe.com) or Brian Sanders with the Colorado Space Grant Consortium (brian.sanders@colorado.EDU). This position will be filled through the Colorado Space Grant Program. http://spacegrant.colorado.edu/

www.digitalglobe.com
**Lockheed Martin**

Lockheed Martin in Littleton, CO

<table>
<thead>
<tr>
<th>Job Title: Electrical Part Analysis</th>
<th>Position #: E01</th>
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<tbody>
<tr>
<td>Project: Lockheed Martin</td>
<td>Available Positions: 1-2</td>
</tr>
</tbody>
</table>

**Description:** Position for Spring 2018. The student will work with the Design Assurance group at Lockheed Martin. The student will review electrical part test data, both mechanical and electrical results and insure success criteria is met before accepting the data and populating a database. This position is interdisciplinary in nature. The student will also likely develop software tools, likely in VBA, and perform data analysis. The student will have exposure to hardware and while working with industry engineers.

**Minimum Requirements:**
- US person status and ability to travel to Littleton CO during the spring semester M-F 7am-6pm and able to work 8-10hrs/week.
- Ability to continue working during the Summer for roughly 40 hours per week
- Mechanical, Electrical, or Aerospace Major or other relevant experience
- Good communication skills, professionalism
- Data manipulation and coding familiarity within Excel
- Good analytical thinking and problem solving skills
- Ability to program in VBA or quickly learn

**Preferred Experience:** Completion of Sophomore level classes

**Time Commitment:** 8-10hrs/week during the Spring Semester with the possibility of continuing this project to 40 hours/week during the summer. Option to work up to full time during academic breaks. **Paid Internship. We are seeking interested candidates now but the opportunity may not start until later in the semester. Interviews are currently planned for February. This is a longer term opportunity which would extend into summer.**

**Contact Information:** Brian Sanders brian.sanders@colorado.edu

**Time Commitment:** 8-12 hours/week Volunteer
# COSGC Student Recruiting

<table>
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<tr>
<th><strong>Job Title:</strong> Recruiting Specialist</th>
<th><strong>Position #:</strong> SR01</th>
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<tbody>
<tr>
<td><strong>Project:</strong> Student Recruiting</td>
<td><strong>Available Positions:</strong> 1-3</td>
</tr>
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**Description:** COSGC is constantly working to create an inclusive community of students from all backgrounds into our statewide program. NASA specifically states that our student projects shall engage at least 40% women and 24% underrepresented students. Colorado Space Grant in Boulder works directly with student societies on the CU Boulder campus that support this community of students to recruit students into our Boulder program in addition to our on-line recruiting. The Recruiting Specialist will work with COSGC staff and the student societies at CU Boulder to hold information sessions at our CO Space Grant facilities as well prepare for a day long hands-on workshop with interested students in November/December of this semester.

**Minimum Requirements:**
- Previous experience with Colorado Space Grant programs (statewide or Boulder)
- Willing and able to learn quickly in a team
- Willing to work new and interested students
- Watched Star Wars (1977) and are prepared to discuss it with Chris Koehler

**Preferred/Optional Experience:**
- Familiarity with Colorado Space Grant goals and objectives
- Experience speaking and presenting in public

**Time Commitment:** Credit or Volunteer, 6-8 hours per week
## Computer Systems

### Job Title: Server Manager  
**Position #: CS01**

**Project:** Computer Systems  
**Available Positions:** 2

**Description:** This is a great way to learn about Space Grant and gain great exposure to many projects. Learn about computer systems from Windows and Linux servers to network setup. We have a great amount of diverse computer systems and you will gain hands-on experience by learning how they work and how to keep them working. Not a lot of previous experience is required - you will learn all the skills necessary on the job.

**Minimum Requirements:**
- A quick learner and willing to ask questions.
- Can spell Linux ☺
- The ability to coordinate with several different Space Grant teams
- Willingness to learn and adapt

**Preferred/Optional Experience:** Experience with a command line interface, Shell Programming

**Time Commitment:** 6-8 hours/week Volunteer

### Job Title: Website Manager  
**Position #: CS02**

**Project:** Computer Systems  
**Available Positions:** 1

**Description:** This is another great way to learn about Space Grant and gain great exposure to many projects. Learn about how to manage, maintain, and create content on a large website. You will gain hands-on experience working directly with the Space Grant website and working with student teams to help them update information on the website to inform the public about our student projects. Not a lot of previous experience is required - you will learn all the skills necessary on the job.

**Minimum Requirements:**
- A quick learner and willing to ask questions.
- The ability to coordinate with several different Space Grant teams
- Willingness to learn and adapt

**Preferred/Optional Experience:** Web development, Joomla, or other Content Management System experience

**Time Commitment:** 6-8 hours/week Volunteer
## Lab Team

<table>
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<tr>
<th>Job Title:</th>
<th>Lab Team</th>
<th>Position #:</th>
<th>L01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project:</td>
<td>Lab Team</td>
<td>Available Positions:</td>
<td>3-6</td>
</tr>
</tbody>
</table>

**Description:** Build Stuff and Learn Stuff. The Lab team will get a broad spectrum of experiences helping to build Space Grant infrastructure and hopefully bring greater knowledge to Space Grant students. Tasks will range from learning about test equipment to helping to improve resources for Space Grant projects. This is a very interdisciplinary team. Learning about Arduinos might be part of the mix of tasks. Additionally this team will support statewide COSGC educational programs. We may also evaluate other longer term educational efforts for student hardware build projects. We may also start looking at

**Minimum Requirements:**
- Student should work well on a team
- Able to learn quickly
- Desire to teach others
- Attention to detail
- Willingness to put energy and time into diverse projects

**Preferred Experience:**
- Microcontroller and embedded systems development experience
- Familiarity with C/C++ programing or mechanical CAD tools
- Soldering skills
- Previous student hands-on project experience

**Time Commitment:** 6-12 hours/week, Paid team lead, Credit or Volunteer
# RocketSat

<table>
<thead>
<tr>
<th>Job Title: Science System Engineer</th>
<th>Position #: R01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project: RocketSat</td>
<td>Available Positions: 2</td>
</tr>
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</table>

**Description:** Our payload is using a passive array to measure radio signals between 2.9 and 3.0 GHz coming from the NEXRAD Doppler Radar Network. The science team is responsible for analyzing this data once we recover the payload. The analysis will involve separating the data into different signals for each ground station and determine the orientation of the payload based on which antenna receives the signals first.

**Useful Skills**
- Payload and mission build experiences on a
- Familiar with Radio Frequency (RF) processing
- Great communication skills and able to communicate technical concerns within a team and to non-technical personnel
- Engineering student
- Proficient in MATLAB

**Required Skills**
- Work well on a team, Learn quickly
- Interest in RF technology and data processing
- US Citizen

**Time Commitment:** 8-12 hours/week Volunteer

<table>
<thead>
<tr>
<th>Job Title: Structural Engineer</th>
<th>Position #: R02</th>
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</thead>
<tbody>
<tr>
<td>Project: RocketSat</td>
<td>Available Positions: 2</td>
</tr>
</tbody>
</table>

**Description:** The structural system houses all components required for the success of the mission. A person on this team would be responsible for using Solidworks and similar software to design complex components to be manufactured and assembled using a variety of methods. You will be expected to machine components using a mill and lathe as well as other manufacturing methods ranging from using hand tools to 3-D printing. You will work within the Structural sub team and work closely with other system teams to support their mission objectives so you must be able to communicate engineering principles and ideas well with other engineers.

**Useful Skills**
- ASEN or ME student
- Machining experience
- Knowledge or certified with CNC machines
- Proficient with Solidworks

**Required Skills**
- Work well on a team
- Learn quickly
- Interest in RF technology
- US Citizen

**Time Commitment:** 8-12 hours/week Volunteer
<table>
<thead>
<tr>
<th>Job Title:</th>
<th>Avionics</th>
<th>Position #:</th>
<th>R03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project:</td>
<td>RocketSat</td>
<td>Available Positions:</td>
<td>2</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>The Avionics team will be responsible for the control and electrical hardware and software on an RF receiving payload. This includes selecting and configuring the computing hardware required, interfacing the various electronic components with each other, as well as developing communications and data handling protocol for the payload’s scientific data.</td>
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</tr>
</tbody>
</table>
| **Useful Skills** | • EE/ECE, CS or ASEN student  
• Programming skills  
• Experience with microcontrollers, particularly Raspberry Pis  
• Soldering and Arduino experience  
• Experience with RF engineering or ham radio operation |
| **Required Skills** | • Work well on a team, Learn quickly  
• Interest in RF technology and data processing  
• US Citizen |
| **Time Commitment:** | 8-12 hours/week Volunteer |

<table>
<thead>
<tr>
<th>Job Title:</th>
<th>Systems Engineer</th>
<th>Position #:</th>
<th>R04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project:</td>
<td>RocketSat</td>
<td>Available Positions:</td>
<td>1</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>The systems engineer is responsible for the payload mission as a whole and helping each sub team integrate properly and checking compatibility between sub systems. They are expected to understand, with at least familiarity, every sub teams responsibilities and what they are in charge of, in order to ensure compatibility for the entire payload with the platform. The systems engineer is required to plan the needed documentation for the system.</td>
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</table>
| **Useful Skills** | • Engineering student  
• Familiar with avionics responsibilities, Radio Frequency (RF) processing, and structural design/analysis  
• Able to communicate, especially technical concerns, within a team and to non-technical personnel |
| **Required Skills** | • Work well on a team, Learn quickly  
• Interest in RF technology  
• US Citizen |
| **Time Commitment:** | 10-12 hours/week Volunteer |
Thanks for reading through all the positions offered this semester. There may be other opportunities available in the coming days so feel free to check back in a few days.