COSGC Student Recruiting

<table>
<thead>
<tr>
<th>Job Title: Recruiting Specialist</th>
<th>Position #: SR01</th>
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</thead>
<tbody>
<tr>
<td>Project: Student Recruiting</td>
<td>Available Positions: 1-3</td>
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</tbody>
</table>

**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
Thwaites-Amundsen Regional Survey and Network (TARSAN)

About the Project: Are you interested in making a difference in a changing climate? Space Grant is joining up with the National Snow and Ice Data Center (NSIDC) to study the effects of climate change on glaciers and sea ice in Antarctica. Student teams will tackle designing and programming devices used for a two-year mission to collect data that will teach us about the impact of changing atmospheric and oceanic temperatures on ice-shelf and stability and grounding line retreat.

We lovingly call our contribution to this project JANE: Joining Antarctica’s Next Generation of Engineers. Perfect for those students looking to commit to a yearlong project that will impact our world as we know it!

<table>
<thead>
<tr>
<th>Job Title:</th>
<th>Temperature Team</th>
<th>Position #: R01</th>
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</thead>
<tbody>
<tr>
<td>Project:</td>
<td>TARSAN - JANE</td>
<td>Available Positions: 2</td>
</tr>
<tr>
<td>Description:</td>
<td>Platinum resistance thermometers on long cables, configured on a CR-1000 data logger. This is just a matter of understanding the four-wire Wheatstone Bridge, wiring and programming the CR-1000, and calibrating the thermistors using a cold bath system here on East Campus.</td>
<td></td>
</tr>
<tr>
<td>Useful Skills</td>
<td>• General wiring</td>
<td></td>
</tr>
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</table>
- Familiarity with data loggers

**Required Skills**
- Interest in Antarctic or extreme environments
- Interests in climate change and environmental protection

**Time Commitment:** 8-12 hours/week Paid. 12 Month commitment required.

<table>
<thead>
<tr>
<th><strong>Job Title:</strong></th>
<th>Pressure Vessel Team</th>
<th><strong>Position #:</strong></th>
<th>R02</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project:</strong></td>
<td>TARSAN - JANE</td>
<td><strong>Available Positions:</strong></td>
<td>2</td>
</tr>
</tbody>
</table>

**Description:** This team will design and build a GO-PRO based deep submersible camera tube capable of reaching a depth of 2000 meters. This pressure vessel must incorporate an extended battery life and rechargeable LED light system for long term usage. The video will capture footage of different ice features to assess the impact of oceanic temperatures on ice structure.

**Useful Skills**
- Experience with batteries and electrical systems
- Previous use of Solidworks or similar program

**Required Skills**
- Interest in Antarctic or extreme environments
- Interests in climate change and environmental protection

**Time Commitment:** 8-12 hours/week Paid. 12 Month commitment required.
Lab Team

A perfect entry level position for students interested in learning the ins-and-outs of Space Grant, including our equipment, facilities, hardware and software. The Lab Team supports the staff and students of Space Grant with a variety of projects aimed at bettering our organization and increasing the knowledge and skills of the Lab Team members themselves. Thanks, Lab Team!

<table>
<thead>
<tr>
<th>Job Title:</th>
<th>Lab Team</th>
<th>Position #:</th>
<th>L01</th>
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<tbody>
<tr>
<td>Project:</td>
<td>Lab Team</td>
<td>Available Positions:</td>
<td>4-6</td>
</tr>
</tbody>
</table>

**Description:**
Build stuff and learn stuff. As a very interdisciplinary team, Lab team members will gain a broad spectrum of experiences from helping to build the Space Grant infrastructure as well as by bringing greater knowledge to Space Grant students. Tasks will range from learning about and using test equipment to helping improve resources for current and future Space Grant projects. Learning about Arduinos will likely be part of the Lab Team tasks. Lab Team also supports statewide COSGC educational programs such as the Colorado Robotics Challenge. We may also evaluate other longer-term educational efforts for student hardware build projects.

**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

Be a team member to design a sounding rocket payload that will go 98 miles into space. The team will choose a mission and design a payload during the fall semester, bringing the design to a Critical Design Review level by the start of spring semester. During spring semester, the team will build and test the payload preparing it for launch in August of 2019 from NASA’s Wallops Flight Facility.

<table>
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<tr>
<th>Job Title:</th>
<th>Project Manager</th>
<th>Position #:</th>
<th>R01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project:</td>
<td>RocketSat</td>
<td>Available Positions:</td>
<td>1</td>
</tr>
</tbody>
</table>

**Description:** The project manager is responsible for leading the team in all capacities. You will be working closely with the team to design, build and test the payload and will have a comprehensive understanding of each subsystem and the system as a whole. Some responsibilities include conducting team meetings, reporting project progress, managing the project budget and schedule, leading project reviews, and communicating with sub teams.

**Useful Skills**
- Engineering student
- Organization
- Leadership skills
- Communication skills, able to communicate technical concerns within a team and to non-technical personnel

**Required Skills**
- Works well on a team
- Learn quickly

**Time Commitment:** 10-12 hours/week Volunteer
<table>
<thead>
<tr>
<th>Job Title: Science System Engineer</th>
<th>Position #: R02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project: RocketSat</td>
<td>Available Positions: 2-3</td>
</tr>
</tbody>
</table>

**Description:** The science system is the part of the payload that conducts the experiment of the mission. A person on this team would be responsible for designing and programming mission hardware and software that will collect data during flight. You will work within the science sub team and work closely with other system teams to support their mission objectives.

**Useful Skills**
- Payload and mission build experience
- Communication skills
- Engineering student
- Programming skills

**Required Skills**
- Work well on a team
- Learn quickly

**Time Commitment:** 8-10 hours/week Volunteer

<table>
<thead>
<tr>
<th>Job Title: Structural Engineer</th>
<th>Position #: R03</th>
</tr>
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<tbody>
<tr>
<td>Project: RocketSat</td>
<td>Available Positions: 2-3</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 structures sub team and work closely with other system teams to support their mission objectives.

**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

**Time Commitment:** 8-10 hours/week Volunteer
### Avionics

**Job Title:** Avionics  
**Position #:** R04  
**Project:** RocketSat  
**Available Positions:** 2-3

**Description:** The Avionics team will be responsible for the control and electrical hardware and software for the 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.

**Useful Skills**
- EE/ECE, CS or ASEN student
- Programming skills
- Experience with microcontrollers
- Soldering and Arduino experience

**Required Skills**
- Work well on a team
- Learn quickly

**Time Commitment:** 8-10 hours/week Volunteer

### Systems Engineer

**Job Title:** Systems Engineer  
**Position #:** R05  
**Project:** RocketSat  
**Available Positions:** 1

**Description:** 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.

**Useful Skills**
- Engineering student
- Familiar with avionics responsibilities and structural design/analysis
- Able to communicate technical concerns within a team and to non-technical personnel

**Required Skills**
- Work well on a team
- Learn quickly

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

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<table>
<thead>
<tr>
<th><strong>Job Title:</strong> Satellite Operator</th>
<th><strong>Position #:</strong> P01</th>
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<tr>
<td><strong>Project:</strong> RocketSat</td>
<td><strong>Available Positions:</strong> 3</td>
</tr>
</tbody>
</table>

**Description:** PolarCube will gather atmospheric temperature profiling data so we can better understand climate change and weather. The Satellite Operator will learn about the basic CubeSat sub-systems including power, structures and about the payload functionality. The Satellite Operators will learn the PolarCube hardware and how to communicate with the satellite with the ground station system. Train in satellite command and operation in preparation for PolarCube launch in early 2019.

**Useful Skills**
- STEM Major
- knowledge of C++ and Python

**Required Skills**
- Work well on a team
- Learn quickly

**Time Commitment:** 6-8 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.