

Applying for SERC Projects:

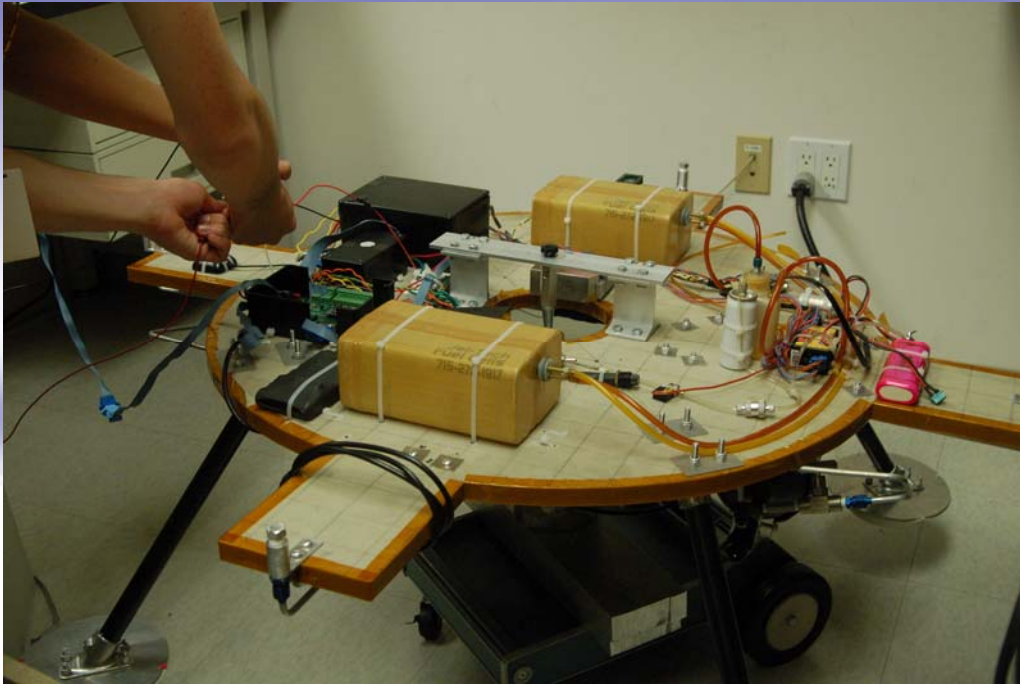
Application Requirements/Constraints: While there are numerous opportunities inside the SERC for support, it is recommended that no one student apply for more than 2 specific projects at one time.

Also, the callouts for technical needs are specific as there are specific tasks to be performed. So please only apply for one task within one project.

Resume Content: Your resume should have as a minimum your degree and projected graduation date at USC, and all other degrees you have obtained, along with a list of pertinent or relevant jobs that point to your qualifications for positions within the SERC.

Where to send the Resume: Send only ONE resume and e-mail to the person listed in the application procedure section for each project listed below.

SERC Project: *LEAPFROG*



Project: LEAPFROG (Lunar Entry and Approach Platform For Research On Ground)

Description: Inspired by the APOLLO Lunar Lander Research Vehicle, the LEAPFROG project includes designing, building and testing a sustainable, low cost, flight-capable hovering platform. The vehicle will demonstrate descent and landing profiles similar to those performed on the Moon, and may carry commercial payloads. This project is hands-on and students are expected to design, build, integrate and deliver subsystems, inside a very integrated team environment.

Location: USC Main and Marina Tech Campus in Marina del Rey.

Citizenship: US and International Students Welcome

Positions Available:

- Systems Engineer
- Attitude Control Subsystem Engineer (Cold gas control systems, high pressure vessels, fast acting valves)
- Guidance, Navigation & Control Engineer (Flight S/W development, phase plane controller)
- Power Subsystem Engineer (High performance Lilon batteries, power distribution, charging)
- Turbine Jet Subsystem Engineer (Safe operation, fuel flow characterization, RPM control)
- Structural Engineer (Composites and layups, landing systems)
- Avionics Subsystem Engineer (Real time embedded systems)

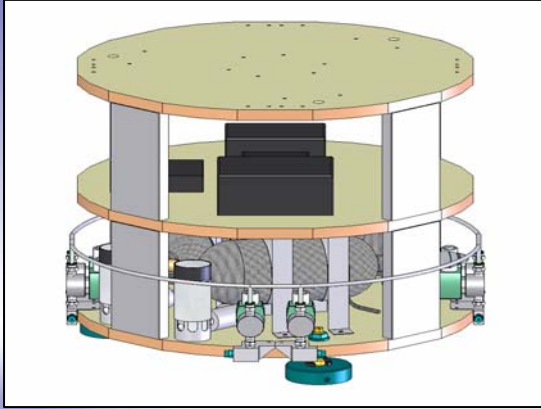
Experience Required: Juniors and above and Graduate students in engineering or computer science are preferred. Positions are awarded competitively.

Procedures for Applying: Submit a resume via e-mail to:

David Barnhart,
Associate Director, SERC
barnhart@isi.edu

Qualified students will be interviewed and selected. Participation is through ASTE 291/491 project coursework during academic year. Some summer internships may be available to select students.

ISI Project: *Micro-Sat Mfg*



Project: **Micro-Satellite and Space Technology Development**

Description: Combination of projects including advanced mission operations development for satellites, structural assembly in space, spacecraft design and systems interface development, rapid prototyping and satellite manufacturing. These projects are all hands-on and students are expected to work with professional staff members and outside engineers on all activities.

Citizenship: US Citizenship or Permanent Resident Required

Location: Marina Tech Campus in Marina del Rey.

Positions Available:

- Computer Systems Engineers (video interleaving with real time 3 dimensional modeling)
- Computer Engineer (network control with multiple RF signals for display and analysis)
- Guidance, Navigation & Control Engineer (implementation of advanced GNC algorithms for inertial and relative navigation and control)
- Astronautics or electrical Engineers (advanced computer development of satellite component interface control through wiring harness development)
- Structural Engineers (mechanisms for assembling structural elements in space)

Experience Required: Graduate students in engineering or computer science are preferred. Exceptional Juniors and Seniors considered. Positions are awarded competitively.

Procedures for Applying: Submit a resume via e-mail to:

David Barnhart,
Associate Director, SERC
barnhart@isi.edu

Qualified students will be interviewed and selected. Positions are paid up to 20 hours/week during academic year, full time internships possible for selected students in summer.

ISI Project: *Small Sat Mission*



Project: **Small Earth Observation Satellite Design and Build**

Description: ISI's internal Small Satellite mission is a LEO Earth observation small satellite mission that is a student/industry spacecraft. Detailed design activities that culminate in both PDR and CDR for a full scale satellite will be completed, and risk reduction hardware testing and build of prototypes will be done. Students will integrate into a team of professional engineers and companies and be assigned subsystem roles and responsibilities.

Citizenship: US Citizenship or Permanent Resident Required

Location: Marina Tech Campus in Marina del Rey.

Positions Available:

- Computer Systems Engineers (Ethernet interconnectivity for avionics)
- Guidance, Navigation & Control Engineer (implementation of flight software for on-orbit operations)
- Astronautics/Electrical Engineers (Hardware in the loop operations, systems analysis, interface control documentation and wiring diagram development)
- Structural Engineers (Aluminum honeycomb buildup, bonding, structural analysis and CAD/CAM design)

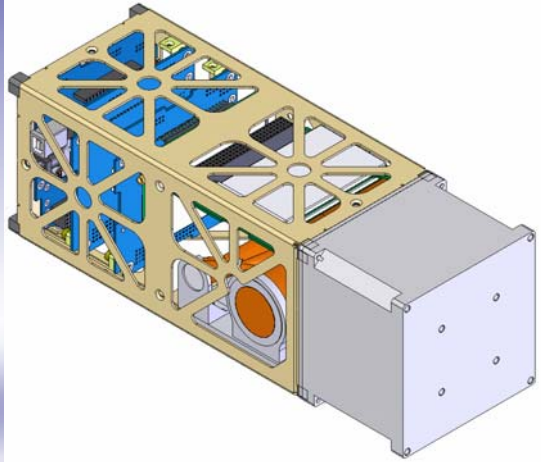
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SERC Project: *CUBESAT*



Project: Cubesat Micro-Satellite Development

Description: USC's first Cubesat development program is supporting the National Science Foundation (NSF) challenge to execute science on a Cubesat platform. A student team will be formed to continue real hardware development and analysis and design for Cubesat integration and test. This project is hands-on and students are expected to design, build, integrate and deliver subsystems, inside a very integrated team environment.

Location: USC Main and Marina Tech Campus in Marina del Rey.

Citizenship: US and International Students Welcome

Positions Available:

- Computer Systems Engineers (Real time operating systems development)
- Guidance, Navigation & Control Engineer (implementation of flight software for on-orbit operations)
- Electrical Engineers (Power systems development, communications systems development)
- Astronautics & Systems Engineers (Systems analysis, mission modeling, orbit analysis and design)
- Structural Engineers (CAD/CAM design and structural analysis)
- Others

Experience Required: Undergraduate and Graduate students in engineering or computer science requested. Positions are awarded competitively.

Procedures for Applying: Submit a resume via e-mail to:

David Barnhart,
Associate Director, SERC
[*barnhart@isi.edu*](mailto:barnhart@isi.edu)

Qualified students will be interviewed and selected. Participation is through ASTE 291/491 project coursework during academic year. Some summer internships may be available to select students.