

Undergraduate Research Assistant Profile - Roshani Patel

During the summer of 2009, Cal Poly civil engineering student Roshani Patel worked as a full-time undergraduate student researcher on the NSF-sponsored "City Block" project. The work took place primarily at the University of California, Davis at the Center for Geotechnical Modeling's centrifuge facility, which is one of fourteen Equipment Sites in the George E. Brown Jr. Network for Earthquake Engineering Simulation (NEES). Roshani took on the research assignment between her junior and senior years at Cal Poly so that she could gain additional engineering experience while also earning money to help pay for her last year of school. Roshani, who is from Bakersfield, California, lived in San Diego and Davis for over seven weeks while working on the project.



Roshani works with a UC Davis graduate student on a model building.

Roshani's assignment began at the University of California, San Diego where she teamed with several graduate students to apply nearly 200 strain gauges to two small-scale structural models. These models were to be tested during a centrifuge experiment aimed at investigating how adjacent structures interact with one another during earthquakes. "I remember learning about strain gauges in my Mechanics of Materials class at Cal Poly," says Roshani. "At the time, I didn't understand them completely, but working with them at San Diego allowed me to better understand their application." With so many gauges, she had ample opportunity to practice.

After finishing her work in San Diego, Roshani traveled to Davis where she worked on a team with five other graduate researchers. The goal: carry out a successful dynamic centrifuge test using the multi-million dollar, state-of-the-art NEES facility. The scope of the City Block project is large, with investigators and student assistants coming from UC Berkeley, UC Davis, UC San Diego, the University of Buffalo, and Cal Poly. Having never worked on a project of this scope, Roshani was impressed by the cooperation between team members and the importance placed on open communication. "A real interesting aspect of the project was how easily the undergraduate and graduate researchers worked with one another," says Roshani. Being able to work closely with other students toward a common goal ended up being one of the most rewarding aspects of the assignment.

While working at the NEES facility Roshani was given many different responsibilities which included constructing the soil layers for the centrifuge model, placing and calibrating instrumentation, documenting the centrifuge experiment with photographs and videos, and applying concepts learned in the classroom. Roshani was happy that the experience provided her with the opportunity to learn more about structures, earthquakes, and geotechnical engineering - all subjects she has enjoyed studying as an undergraduate. Although not necessarily interested in graduate school before this assignment, she is now preparing applications for several top graduate programs. Having the option to either work in practice or earn a graduate degree in civil engineering is now an important goal for Roshani. "The experience of working on the City Project really gave me a new understanding of graduate school. I would very strongly recommend opportunities such as this for students interested in pursuing graduate work."



Roshani (left) with graduate researchers from UC Davis, UC San Diego, and UC Berkeley.

Soil-Structure Interaction on the Scale of a City Block

Seismic Performance Assessment in Dense Urban Environments



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