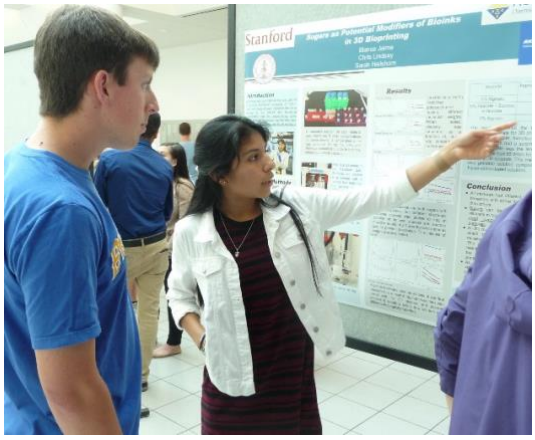
Example RISE Projects

No two RISE projects are quite the same. What interns work on depends on their labs, mentors, and their own interests and abilities. Projects range from developing tools for the lab, to collecting data for existing projects, to developing independent research projects. All students present their projects at the end of the summer in a poster session.

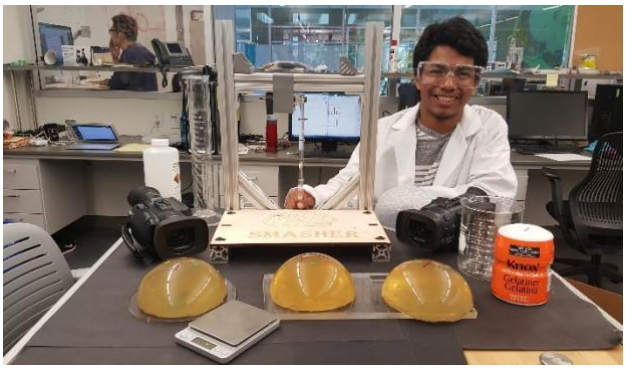
Biology/Ecology
This lab's research focused on the ecology of infectious disease. Current research conducted at Jasper Ridge Biological Preserve explores how pathogens may alter the outcome of competition between native and exotic grasses. The intern measured demographic and functional traits of plants and seeds, quantified pathogen damage, collected and cultured fungi, and maintained greenhouse plant experiments.



Obstetrics/Gynecology
This project focused on understanding how the maternal immune system is impacted by preeclampsia during pregnancy in order to better diagnose and develop strategies for saving the lives of women and infants. The intern learned how to run protein gel electrophoresis and optimize primary antibodies for Western blotting.

Electrical Engineering
In this project, the intern took part in the development and evaluation of a sensor for an Internet of Things (IoT) application, such as a fitness tracker. The intern learned how to program a microcontroller or similar platform to capture sensor data and enable wireless communication with other devices (e.g. cellphone). Evaluation tasks involved setting up experiments in the lab and outside to test sensor performance under different conditions (e.g. under movement).

Materials Science and Engineering
This group designs materials that mimic the nano- and micro-scale order found in nature for applications in regenerative medicine, tissue engineering, and energy. This project focused on antibacterial coatings for implants and investigated the release of antibiotic particles from various implant surfaces and similar scaffolds. The intern created antibacterial coatings, created her own starting materials, and assisted in measuring antibacterial data.



Bioengineering
This lab studies the head impacts of football players through sensors attached to the mouth guards of players to improve player safety with better equipment standards. This summer, the intern engineered gelatin models of the brain to further research on head impacts and development of safety equipment.