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CENTER
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CHANGE
THE WORLD

Changing the face
of science
and technology.



UNIVERSITY OF CALIFORNIA
SANTA CRUZ

DIVISION OF SOCIAL SCIENCES

ISEE

Institute for Scientist & Engineer Educators

OUR MISSION

The Institute for Scientist & Engineer Educators (ISEE) is building a new kind of science, technology, engineering, and mathematics (STEM) workforce: one based on diversity and inclusivity.

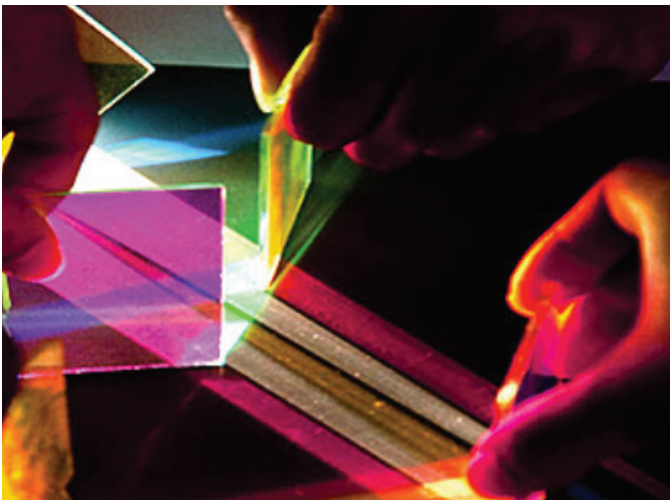
We train and position leaders in academia and industry in order to enable people from all backgrounds to succeed in STEM.

OUR WORK

ISEE works with STEM undergraduates, graduate students, post-graduates, and professionals through a suite of overlapping programs. ISEE's philosophy is that effective STEM teaching involves being inclusive of people from diverse backgrounds, which we accomplish through curriculum design and a set of strategies for teaching and mentoring.

Our instructors teach skills that are rarely taught but highly valued in the STEM workforce, as well as how to teach those skills to others. These skills include:

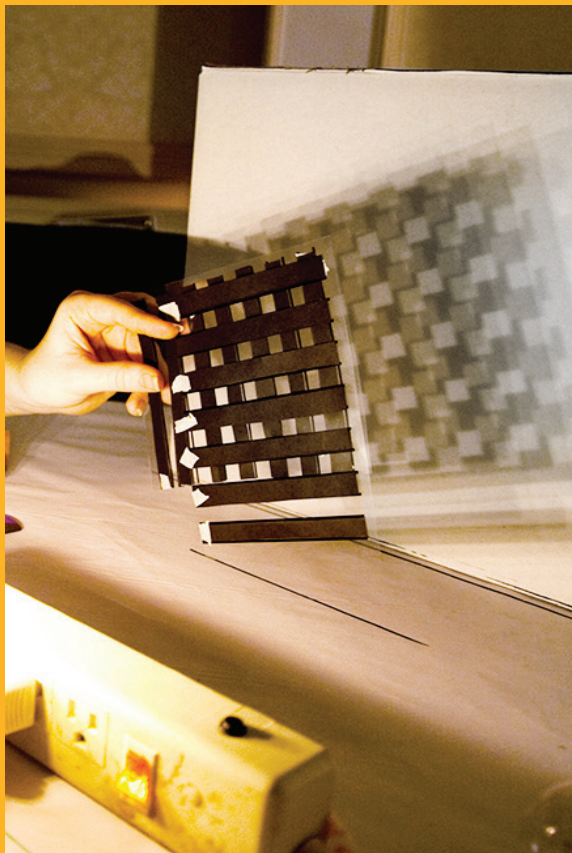
- Communication, leadership, teamwork, and collaboration
- Teaching science and engineering as they are done in the real world
- Mentoring students doing research projects
- Equity and inclusion in all of the above



PROFESSIONAL DEVELOPMENT

ISEE teaches graduate students and postdoctoral researchers the skills to be effective and inclusive educators. Many ISEE alumni become university faculty, where they each in turn will impact thousands of students throughout their careers, including future K-12 teachers. More than 500 people have participated in ISEE professional development programs. Demand for ISEE programs continues to grow, and ISEE chapters are enabling us to have a national impact.

A unique aspect of ISEE's professional development is that all participants have a practical teaching experience on a team. ISEE mobilizes about 25 teams each year, which impact up to 500 undergraduates.



WORKFORCE DEVELOPMENT

ISEE workforce development supports U.S. astronomy. We work with ground-based telescopes in Hawaii, addressing vital staffing needs. Ground-based telescopes are remotely-located facilities with unique workforce challenges. They need to harness local talent in small communities, and ISEE's innovative and inclusive STEM approach has been successfully utilized to accomplish just that.



ANSWERS FROM THE CENTER DIRECTOR

Q: **Why does ISEE focus on training graduate students?**

A: We believe that changing how graduate students are trained will improve STEM education throughout the educational system. Graduate students receive little to no training in how to engage today's diverse student population. Each generation of Ph.D.s who are ill-prepared to teach risks propagating a largely ineffective pedagogy to a new generation of college students, including future K-12 teachers. This cycle will continue until there is more investment in changing STEM education practices at the source: the teaching of education to future college faculty.

Q: **Why is ISEE leading workforce development for telescopes?**

A: ISEE is a legacy of the Center for Adaptive Optics, an NSF-funded center dedicated to advancing technology essential to today's telescopes. The center developed "Akamai," a program which has been advancing local students into the high tech workforce in Hawaii since 2002. Akamai has been rigorously evaluated and has demonstrated that, with the right support, nearly 90% of college students can be retained in science and engineering – including those from groups with historically high attrition rates. Through Akamai and partnerships with many of the world's premier telescopes, ISEE supports U.S. astronomy by training people how to operate telescopes and explore the universe.



THE DIFFERENCE IS YOU

With your help, ISEE will accomplish these goals:

- Endow and appoint a director
- Endow the institute through naming rights
- Dramatically increase scholarships to allow more graduate student participation
- Initiate a yearly, national event to connect ISEE alumni with employers
- Expand outreach to Silicon Valley business and technology companies
- Raise seed money for local chapters to expand ISEE's reach
- Support U.S. astronomy by increasing scholarships in ISEE's Akamai program
- Become a regional site sponsor for ISEE's mentor workshop
- Establish a named freshman experience program taught by ISEE graduate students

We depend on private donations to help fund the vital work we do. **Thank you for your support!**



Investing in science education and curiosity-driven research is investing in the future.



— Ahmed Zewail

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Contact the Social Sciences Development Office
at 831-459-3857 or by email at socsci@ucsc.edu.



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THE ORIGINAL
AUTHORITY
ON QUESTIONING
AUTHORITY