# Center for Adaptive Optics Summer Opportunities for Undergraduates

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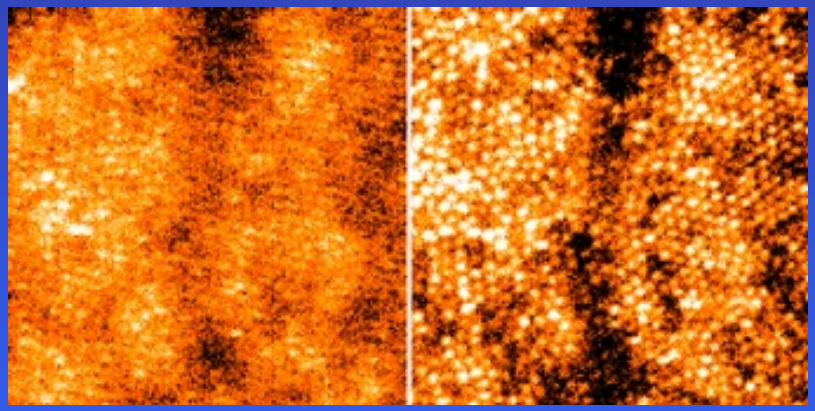
# Adaptive Optics

## VISION SCIENCE

Correct for blur aberrations in the eyes optics



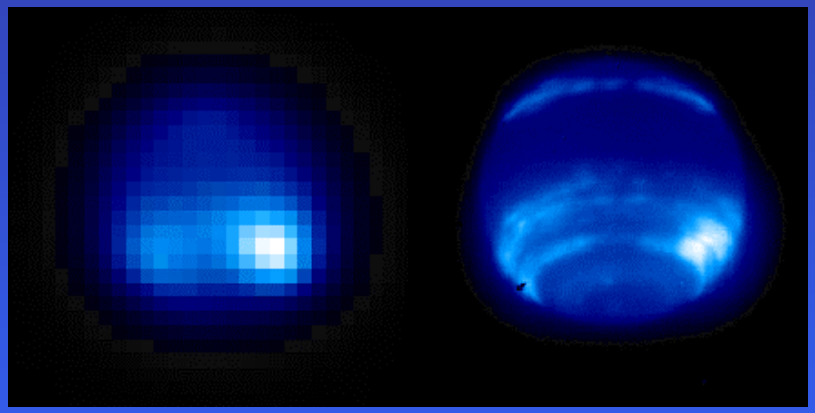
**Without AO** **With AO**

Images of single cells in the living human retina
Can detect eye disease at early stages.

**http://www.cvs.rochester.edu/williamslab/home.html**
**http://cfao.ucolick.org/~max/289C.old/**

## ASTRONOMY

Compensate for the blurring caused by aberrations in the Earth's atmosphere



**Without AO** **With AO**

**These applications utilize many different disciplines including math, physics, astronomy, mechanical, electrical and computer engineering**

# Center for Adaptive Optics

- **National Science Foundation funded "Science and Technology Center"**
- **11 member institutions, 9 affiliated institutions, 11 industrial institutions**
- **Headquarters at UC Santa Cruz**

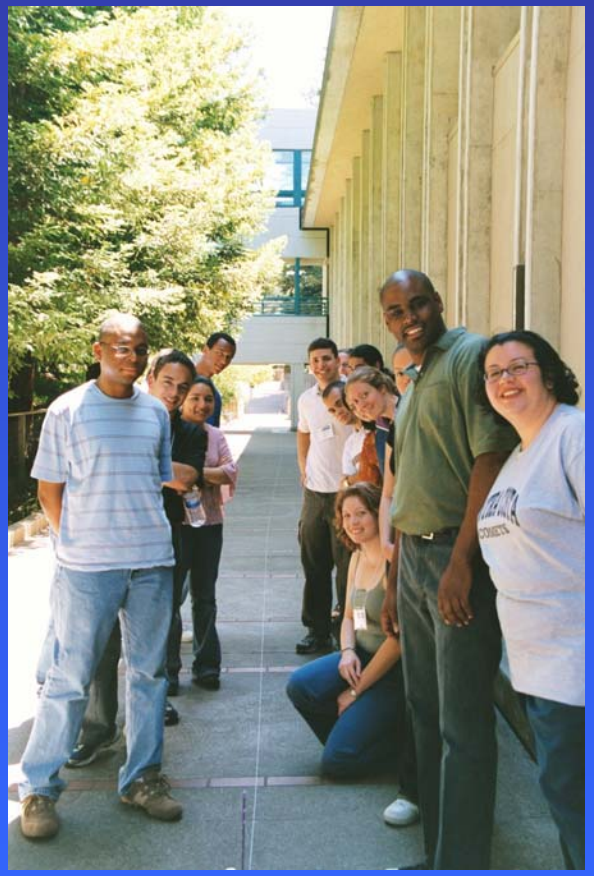
**Projects separated into four themes:**

1. **Education and human resources**
2. **AO for extremely large telescopes**
3. **Extreme adaptive optics**
4. **Compact vision science instrumentation**

**National Research**

# Undergraduate Summer Internship

- **Summer program**
  **June 20th – August 24th 2004**
- **For undergraduate students from community college and 4-year institutions: sophomore thru 5th year students.**
- **One-week astronomy, optics, engineering, vision short course at UC Santa Cruz**
- **Final Presentation at UCSC Center for adaptive Optics student session**



# Internship Sites

**Vision Science**

**University of Rochester**

**University of Houston**

**Indiana University**

**Do research on something outside of your major, use skills you know to learn new skills**

**For students interested in: computer science, mechanical, electrical, computer engineering, math, vision science, physics, pre-optometry, other?**

# Internship Sites


**UC Berkeley (astronomy)**

**UCLA (astronomy)**

**UCSC (engineering, computer science, astronomy)**

**Iris AO (mechanical engineering)**

**Jet Propulsion Lab (computer science and astronomy)**

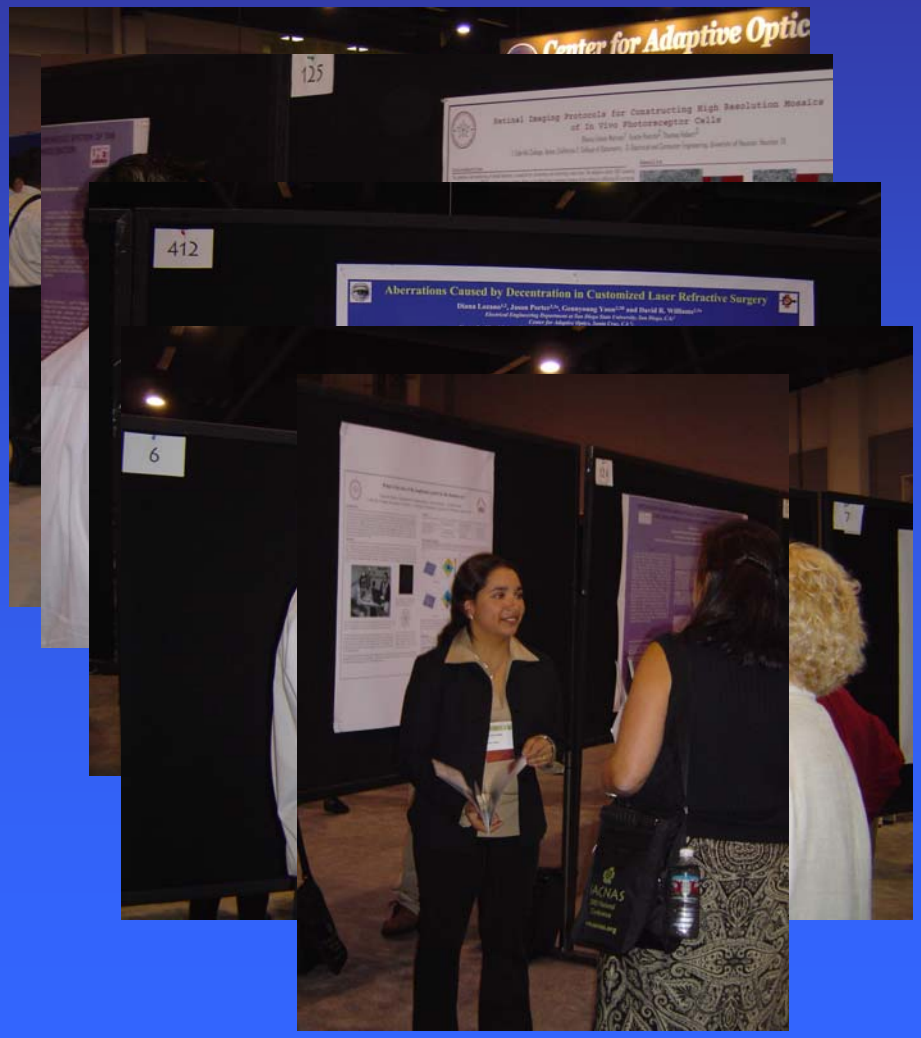
**Lawrence Livermore National Lab (engineering, computer science, astronomy)**

**Do research on something outside of your major, use skills you know to learn new skills**

# What Do I Get Out of It?

- Become a part of the Center
- Work with faculty and grad students
- Meet other students with your same interests, build a community
- Travel throughout the US
- Do research with instrumentation not available at community college.
- $2,500 stipend for eight weeks of work
- Paid housing
- Paid travel
- References, a job…….what else?

# SACNAS Conference




- **Be a part of the Center**
- **Present a poster on your research**
- **Gain confidence speaking about your research to professionals in your field**
- **Make contacts:**
  - **Graduate school**
  - **4-year school (transfer)**
  - **Future employment**

# Am I Eligible?

- Strong interest in the sciences, particularly those associated with CfAO research
- What will you do with this experience?
- What can make you more competitive:
  - Some calculus
  - Strong letters of recommendation

# How do I apply?

- Apply on line (see handout)
- Sign contact sheet and receive email reminder
- Deadline for applications February 14, 2004

**Keep in touch!!!**