



# Mentoring Undergraduate Researchers

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<http://www.cs.washington.edu/homes/ladner>



## Personal Background

- My first research experience as an undergraduate in 1960's.
  - St. Mary's College of California
  - Brother Alfred
- UW Computer Science in the 1970's and 1980's
  - Required Senior Project
- UW in the 1990's and 2000's
  - Recognition that access to research by undergraduates differentiates UW from other kinds of institutions

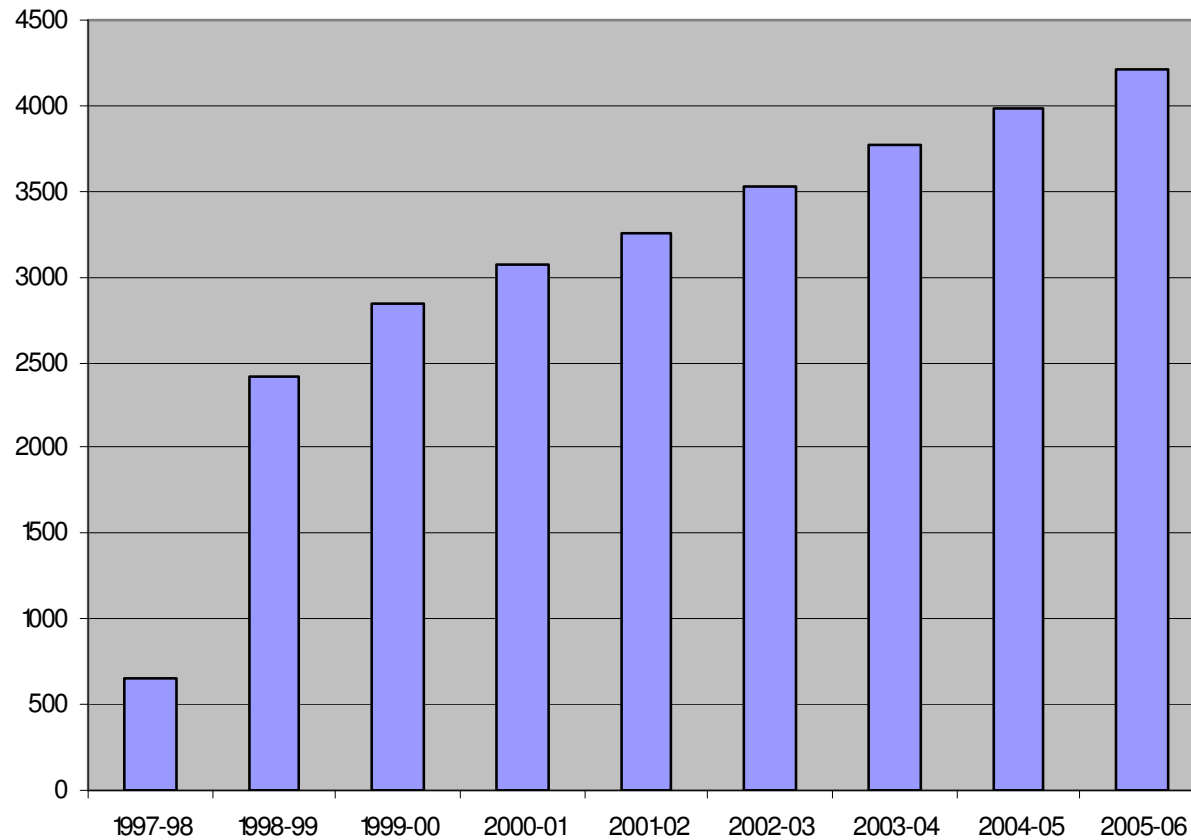


# Institutionalization of Undergraduate Research

- UW Undergraduate Research Program
  - <http://www.washington.edu/research/urp/>
- NSF REU Sites
  - UW has three in Materials Science, Math, and Chemistry
- NSF REU Supplements
  - \$6,000 per student almost for the asking
- UW Space Grant Undergraduate Research Program
  - Requires matching
  - 50 summer researchers
- UW Mary Gates Research Scholarships
  - Awards directly to students
  - 200 annually



# Undergraduate Researchers at UW





# Promoting Undergraduate Research in CSE

- CSE Honors Program
  - Senior thesis required
  - 50 minute talk required
- CSE Best Senior Thesis Award
  - <http://www.cs.washington.edu/education/ugrad/current/bestseniorthesis.html>
- CSE Undergraduate Research Seminar
  - Venue for undergraduate talks
  - More than 115 talks since 2000
  - <http://www.cs.washington.edu/education/courses/se497/>



## My Undergrad Researchers This Year

- **Omari Dennis** (Norfolk State) \*, MobileASL Project
- **Sam Whittle** \*, MobileASL Project
- **Jessica DeWitt** \*, MobileASL Project, User Interface
- **Jessica Leung** \* ^, WebInSight Project
- **Max Aller**, WebInSight Project
- **Jeremy Brudvik** \* ^ x, WebInSight Project
- **Cian Malone** \*, Tactile Graphics Project
- **Dana Wen** \* + ^ x, Tactile Graphics Project
- **Kevin Dick** (Cal Tech) x, Prefetch Friendly Algorithms
- **Effie Goenawan** , Video Compression

\* recipient of NSF REU

+ recipient of Mary Gates Research Scholarship

^ recipient of a NASA Space Grant

x published paper



## Finding Students

- Try to match the student's interest with the project, not vice versa.
- If you have a specific project that an undergraduate can do, then recruit students with the right skills and background. Do an "open" hire.
- Take on a talented student early in his/her career, and move them from easy to harder projects as they progress in their careers.



## Encouragement

- Encourage students, who are capable, to do a senior thesis and get an honors degree. The goal of the honors degree is a strong motivator,
- If the student is capable, write conference papers or posters with them and send them to conferences.
- Always encourage, never discourage.





## More General Advice

- Meet regularly with the student.
- For group projects have make undergrads part of the team.
- Have students do legitimate research, not just scut work.
- Give the student ownership of a real research problem.