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/](http://www.washington.edu/research/urp/)

- NSF REU Sites
  - UW has four in Materials Science, Math, Physics, and Chemistry

- NSF REU Supplements
  - $6,000 per student almost for the asking
  - [http://www.engr.washington.edu/facresearch/undergradresearch/aboutreu.html](http://www.engr.washington.edu/facresearch/undergradresearch/aboutreu.html)

- UW Space Grant Undergraduate Research Program
  - Requires matching

- UW Mary Gates Research Scholarships
  - Awards directly to students
Promoting Undergraduate Research in CSE

• CSE Honors Program
  – Senior thesis required
  – 50 minute talk required

• CSE Best Senior Thesis Award

• CSE Undergraduate Research Seminar
  – Venue for undergraduate talks
  – More than 100 talks since 2000
  – http://www.cs.washington.edu/education/courses/cse497/
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.