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 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

![Chart showing the number of undergraduate researchers at UW from 1997-98 to 2005-06](chart.png)
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 115 talks since 2000
  – http://www.cs.washington.edu/education/courses/cse497/
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** *, WebInSight Project
- **Cian Malone** *, Tactile Graphics Project
- **Dana Wen** */, Tactile Graphics Project
- **Kevin Dick** (Cal Tech) *, Prefetch Friendly Algorithms
- **Effie Goenawan**, Video Compression

* recipient of NSF REU
+ recipient of Mary Gates Research Scholarship
^ recipient of a NASA Space Grant
× 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.