Top Tier Proposal

University of Oregon
Computer & Information Science
December 12, 2001

Purpose of Top Tier Funding

- Improve the *quality* of Oregon's educational program in engineering & computer science
- For UO-CIS: Focus on improving *quality* of graduate computer science education at the Ph.D. level

UO CIS Dept. Overview

- Degrees in Computer Science
  - B.S., M.S., Ph.D. in Computer Science
- Nationally ranked CS research graduate program
  - National Research Council (NRC) in 1993 ranked 61
  - National Science Foundation in 1999 ranked 48 in research funding
- UO accredited by AAU, Tier 2 in US News & World Report for 249 doctoral institutions (2002)

Goals

(from UO-CIS Long-Range Plan 2000)

- Reach second quartile NRC* ranking of Ph.D. computer science programs
  * NRC is the National Research Council
- Earn recognition as one of the top ten institutions nationally in one to three research specializations
- Increase external research funding by 50% within three years

Peer Comparisons

- University of Virginia (NRC 35)
- University of Colorado, Boulder (NRC 40)
- University of California, Santa Barbara (NRC 48)
- **University of Oregon (NRC 61)**

* NRC is the National Research Council

Peer Comparison Measures

- Visibility
  - National Research Council (NRC) Ranking
  - Number of IEEE & ACM Fellows
  - Number of Editorial Board Members
- Resource Distribution
  - Ratio of B.S./Faculty
  - Ratio of M.S./Faculty
  - Ratio of Ph.D./Faculty
- Resource Input
  - Ratio of funded research/Faculty
  - Ratio of state and tuition funding/Faculty

EXAMPLE: Resource Distribution Measures

(Year 2001)

	Total Faculty	Total BS students	BS per Faculty	Total MS students	MS per Faculty	Total PhD students	PhD students Per Faculty
Virginia	24	425	17.7	32	1.3	43	1.8
Colorado	32	600	18.8	200	6.3	100	3.1
UCSB	25	600	24.0	70	2.8	80	3.2
Oregon	18	560	31.1	32	1.8	26	1.4

How do you improve quality in a CS graduate program?

- Reduce student/faculty ratios
  - Increase number of faculty
  - Emphasis should be placed on graduate ratios
  - Emphasis should be placed on PhD ratios
- Create visibility in research activity
  - Increase number of faculty in new research areas
  - Increase research funding/faculty
  - Increase publication/faculty
- Create visibility in prestige of faculty
  - Endowed chairs?

Key Strategies

(from UO-CIS Long-Range Plan 2000)

- Establish High Profile Research Focus
  - Build on existing strengths
  - Emphasize collaboration
  - Focus for new faculty and new graduate students
- Improve quantity and quality of new faculty
  - Competitive salaries and startup
- Improve quantity and quality of Ph.D. students
  - Competitive financial support

Five Year Plan

- ***Distributed Informatics Research Center***
  - Distributed Databases, Data Mining
    - Physically distributed but appear as one information resource
    - Automatic searching in large-scale distributed resources
  - Distributed Document Architecture
    - Evolving documents distributed across physical locations
    - Multiple presentations of the same document, e.g., voice presentations for the visually impaired
    - Future documents are location aware, adaptive to environment
  - Mobile Information Systems
    - Heterogenous, ad hoc networks of laptops, PDA's, cell phones

Five Year Plan - cont.

- Builds on extensive faculty work in distributed systems
  - Networking (Focus of 20X ETIC funding)
    - Multicasting
  - Bioinformatics and Computational Science
    - WWW Genetics Database (NIH, NSF, Keck funding)
    - TIERRA Pacific seismic imaging (NSF funding)
  - Wearable Computers
- Multi-disciplinary foundations at UO-CIS
  - Operating Systems, Networking, Graphics, Human-Computer Interaction, Computational Science

Five Year Plan - cont.

- Hire new mid-career faculty member in Distributed Informatics (Top Tier money)
- Create Flagship research project in Distributed Informatics
  - Encourage collaboration among faculty
  - Build on prior success
  - Allocate dept. resources for initial proposals
  - Apply for federal research grants

Two Year Budget
(Top Tier 2001-2003)

- UO Total Amount (2001-2003) $447,000
  - Mid-Career Faculty Hire (Salary + Benefits) 2 years
    - $229,500 ($85,000 salary per year, 9 months)
  - Startup Package
    - Lab Equipment
      - $100,000
    - Graduate Research Asst. (Salary + Benefits) 2 years
      - $76,000
    - Summer Salary (2 months)
      - $25,500
    - Misc.
      - $16,000

Evaluating the Success of UO CIS Top Tier Program

- Visibility Targets
  - National rankings
  - Faculty prestige at national and international levels
  - Publications/faculty
- Resource Distribution Targets
  - Increase in Faculty & PhD students
  - Increase in ratio of PhD students/Faculty
- Resource Input Targets
  - Increase in external research funding, Research $/faculty
  - Increase in state funding

Visibility Targets
(Five Year Plan)

	2000-01 (base)	2003-04 (+3 yrs)	2005-06 (+5 yrs)
National Research Council (NRC) rank	61 (1993)	45	same
NSF CS research funding rank	48 (1999)	44	42
Recognition for strength in area	none	none	one area

Visibility Targets
(Five Year Plan)

	2000-01 (base)	2003-04 (+3 yrs)	2005-06 (+5 yrs)
Annual Publications/Faculty	3.1 (1993)	4.0	4.5
Editorial Board members	4	6	8
NSF Career awards	2	4	6
IEEE/ACM Fellows	1	2	3

Resource Distribution Targets
(Five Year Plan)

	2000-01 (base)	2003-04 (+3 yrs)	2005-06 (+5 yrs)
Number of Faculty	18	20	22
Number of PhD students	26	36	44
PhD's per Faculty	1.4	1.8	2.0

Resource Input Targets
(Five Year Plan)

	2000-01 (base)	2003-04 (+3 yrs)	2005-06 (+5 yrs)
Funded Research	$3.352M	$5.028	$6.285
Research $ per Faculty	$186k	$279k	$285k
State money	$50k	$750k	$1.0M