

**Engineering and Technology Industry Council
Campus Investment Proposal
Biennium from July 1, 2007 to June 30, 2009**

Campus: OGI/OHSU

Contact Name: Ed Thompson, Dean

Date of Revised Submission: May 22, 2006

Summary of Proposal:

An investment of \$2.9M is requested to support the recruitment of 4 new faculty, including both junior and senior faculty, to expand our growing programs in Biomedical Engineering and Biomedical Computation. These faculty are critical for building a top-tier academic research program under the merger of OGI with OHSU.

Vision Statement

“To provide superb graduate education and research in Biomedical Engineering and Biomedical Computation, grounded in engineering fundamentals, with a primary focus on applications to human health.”

Aspirational Peers

- ✱ Johns Hopkins University (Biomedical Engineering)
...the best BME academic department in the USA...
- ✱ Stanford University (Center for Biomedical Computation)
...premier program in computational science & technology
- ✱ University of Washington (Biomedical Engineering)
... a large, mature, highly-ranked BME department

Long-term Goals

- ✱ Achieve a top-20 overall ranking in Biomedical Engineering
- ✱ Achieve an international reputation in Biomedical Computation
- ✱ Maintain and grow the international reputation in speech and language technology of the CSEE department's Center for Spoken Language Understanding
- ✱ Become an IP generator that drives new business creation
- ✱ Grow to 40 full-time top-quality faculty
- ✱ Expand federal research funding to \$20 M per year
- ✱ Graduate 15-20 PhD “entrepreneur-scholars” per year
- ✱ Become a “go to” institution for industrial collaboration and research

Investment Description

1. Provide startup packages for 4 new research faculty in Biomedical Engineering and Biomedical Computation. In order to recruit the very best faculty, which is critical for long-term success, these packages will be leveraged by funding from the Murdock foundation and other donors
2. The Biomedical Engineering department will relocate to new space on the OHSU South Waterfront campus in the Fall of 2006. Funding will be needed to modify laboratories as new faculty are recruited. Funds exceeding \$3M for the buildout of the basic laboratories have already been provided by federal agencies.
3. Invest faculty time to build relationships and a research infrastructure that will be attractive to local and national industries. Identification of opportunities that will leverage existing strengths and serve important unmet needs in medicine is critical. Our focus areas will include:
 - Biomedical optics, image acquisition, and image analysis
 - Cardiovascular tissue engineering
 - Nano-biotechnology
 - Neuroengineering
 - Diagnostic, assistive, and remedial technologies for neurological disorders
 - Biomedical Signal Processing
 - Data Mining and Information Management for image, biomedical signals, text, and speech
4. Invest faculty time to develop relationships with local and national industries, which already include, among others
 - Intel
 - Genentech
 - Eli Lilly
 - Medtronic
 - Johnson & Johnson
 - IBM
5. Invest in the creation of startup companies from OGI. Examples are:
 - Revitus, Inc. from Biomedical Engineering (pharmaceuticals for treating heart attack and stroke)
 - BioSpeech, Inc. from the Center for Spoken Language Understanding (technologies for speech and language processing)
6. Faculty time will be invested to capitalize on completion of OHSU's new Advanced Imaging Research Center. This Center plus additional microscopy facilities within

OHSU provide cutting edge opportunities for OGI faculty with research activities in imaging processing and quantum dot labeling of biological molecules. A specialty track in biomedical imaging has already been initiated.

Results and Benefits

1. Four new faculty with strong research and translational credentials will be hired to strengthen and expand existing research programs. Preference for at least one of these positions will be given to a very experienced, senior scientist/engineer. Such a person would be expected to bring in approximately \$600,000 in extramural grant support. As junior faculty develop, the four new faculty would be expected to bring in an excess of \$1.5M per year in federal research dollars. Expected benefits will include patent filings, industry contracts, license agreements, and spinoff companies.
2. The four new hires will engage industry locally (e.g., Intel, Welch Allyn, Biotronix, Hemonix, IBM) as well as nationally. The development of a critical mass of faculty with relevant bioengineering and biomedical computation skills and a focus towards entrepreneurship and commercialization will encourage bioscience industries to grow or relocate to Oregon (e.g. Genentech).
3. Complete development of a research and graduate educational program in biomedical imaging. These programs will attract both federal research funds and industry contracts. Many graduates of these programs will remain in Oregon, enhancing our ability to attract bioscience industries.

Proposed Investment and Private Support Forecast (\$M)

		2007-2009 Biennium
1		
2	Proposed State investment (\$M)	
3	Existing programs	\$0.6M
4	New programs	\$2.3M
5	Subtotal	\$2.9M
6	Expected private support	\$2.0M
7	Other	\$1.0M
8	Total (\$M)	\$5.9M
9	Personnel supported (FTE)	
10	Existing faculty	6.0
11	New faculty	4.0
12	Existing staff	6.0
13	New staff	0.0
14	Total	16.0
15	Uses of proposed investment	
16	New facilities	\$0.0M
17	Improvements to facilities	\$0.75M
18	Laboratory equipment	\$1.8M
19	Other equipment	\$0.0M
20	Other one-time expenses	\$0.15M
21	Existing faculty salaries & benefits	\$0.5M
22	New faculty salaries & benefits	\$1.3M
23	Existing staff salaries & benefits	\$0.5M
24	New staff salaries & benefits	\$0.7M
25	Services & supplies	\$0.2M
26	Total	\$5.9M

Metrics Forecast (for programs/departments receiving ETIC funding):

	AY 05 (1)	AY09	AY11	AY13	AY20
Undergraduate student credit hours	NA	--	--	--	--
Graduate student credit hours	7.3K	8K	9K	10K	11K
Bachelor's degrees granted	NA	--	--	--	--
Master's degrees granted	95	100	120	140	160
PhD degrees granted	11	16	20	24	30
Externally funded research expenditures	\$14.3M*	16M	18M	20M	24M
Invention disclosures (4)	12	14	16	18	20
License/options (5)	12	14	16	18	20
License income received (6)					
Startup Companies (7)	1	0.3	0.3	0.3	0.3
National ranking of <program or department> (8)					20 (2)
National ranking of <college> (9)					
(1) AY 05 used as reference year because of major reorganization after AY 99					
(2) Goal for BME department. U.S. News rankings					
* Included large one-time private award					