



Oregon Center of Excellence in NeuroTechnology Engineering and Research (OCENTER)

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Problem/Need and Solution

- Problem/Need
 - Rapid growth in neurological problems in aging (Alzheimer's) and children (autism)
 - Society is ill-prepared
 - Causes human suffering and major costs
- Solution/Approach
 - NeuroTechnology
 - Emerging, rapidly growing field
 - Applying engineering to revolutionize diagnosis, remediation, and continuous care

Strengths to be leveraged

- OHSU ranks third in neuroscience in the nation.
- ORCATECH (Oregon Center for Aging & Technology)
 - Technology for unobtrusive in-home assessment
 - Largest in-home study in the nation
- CSLU (Center for Spoken Language Understanding):
 - Technology for “speech markers” of neurological disorders
 - Leading autism research group in the State
- NeuroTechnology expertise at PSU, OSU, and U of O.

Vision and Impact

- Vision
 - Creation of OCENTER:
Oregon Center of Excellence in NeuroTechnology Engineering and Research
- Impact
 - Positions Oregon as the “go to state” for the emerging field of neurotechnology.
 - Stimulates growth in research, clinical applications, education and companies



Emerging ocean technologies for ecosystem and human health

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Emerging ocean technologies for ecosystem and human health

The global market for environmental monitoring technologies was \$9.1 billion in 2008, and should reach \$13 billion in 2014, for a compound annual growth rate of 5.2%.

The opportunity: Establish and sustain Oregon as a premier exporter of ocean technologies (sensing, prediction, and cyber services) to anticipate and mitigate impacts of climate change and emerging contaminants on ecosystem and human health.

Distinctive strength:

- NSF Science and Technology Centers (STCs) are transformative national programs designed for impact on society and workforce development in a selected S&T field.
- One of only two STCs dedicated to the ocean is headquartered in Oregon: the Center for Coastal Margin Observation and Prediction (CMOP), established in 2006.
- CMOP academic partners in Oregon include OHSU (lead), OSU, PSU, private four-year colleges (Pacific Univ. and Lewis & Clark College) and Clatsop Community College. Collaborating Oregon industries include WET Labs, SHARP Labs of America and Intel.



See more at <http://www.stccmop.org>.



Emerging ocean technologies for ecosystem and human health

Challenges

- Workforce development
- Academic-industry synergies

Proposed initiatives

- Faculty and leadership recruitment and retention
 - Hire an Associate Director for Industry Relations
 - Strategically strengthen an already exceptional core of faculty at OHSU and statewide
 - Near term: Hire one new faculty and support two recent junior faculty hires at OHSU
 - Long term: 3 new faculty statewide
- Establish the multi-institutional educational pathways to sustain specialized workforce development
 - Undergraduate internship program (8/summer)
 - Graduate student stipends (4/yr)
 - Develop a new Professional Science Master's Program: "Environmental Systems and Human Health"
 - Course shareware (for universities throughout Oregon)
- Bridge traditional "valleys of death" in technology development
 - Targeted research projects
 - Near term: Two at OHSU, one at PSU, one at OSU (@\$50K each)
 - Long term: 3-5 new projects/biennium (\$200K/biennium)

