

OGI/ETIC Success Story

Department of Biomedical Engineering:

Rapid growth since '02 inception. 5 new faculty hires (partially ETIC funded) have resulted in a total faculty of 13, with 30 total PhD students. Federal and corporate research funding now totals \$2.4M/year. Collaborations with *Genentech* and *Intel* have resulted in grants, contracts, and new research projects. One new startup company was formed - *Revitus*.

Research in *biomedical optics*

Two new faculty and multiple health related projects include: diagnostic studies of skin cancer, diabetic retinopathy, cataracts, and vascular plaques; laser microsurgery and tissue welding; light-induced chemotherapy.

Research in *cardiovascular and tissue engineering*

Has grown with two new faculty to include studies of: methods to control clotting related to stroke, heart attack, and vascular grafts; hemodynamic influences in heart development; and bioengineered blood vessels.

New research initiative in *point-of-care engineering*

Leading in the development of new devices and data processing methods for assessing the cognitive and motor functions of people in their homes to provide improved diagnostic testing and assessment.



New faculty hires – Biomedical Engineering

Tania Vu: *Assistant professor*

Tania received her PhD from U.C. Berkley in vision science (neuroscience). Her research is focused on the development and application of nanoscale quantum dot technology as a new tool for studying and modulation of neurons in the brain.

Owen McCarty: *Assistant professor*

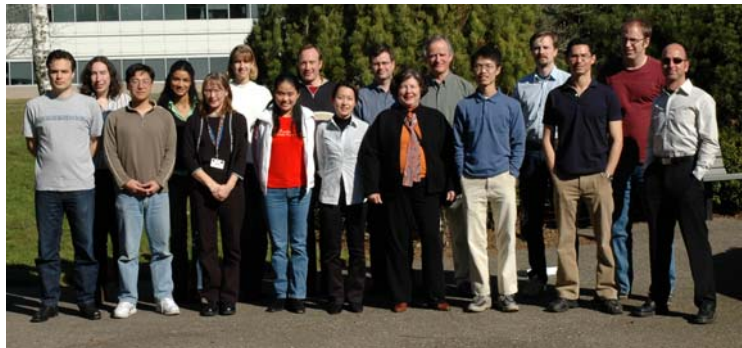
Owen received his PhD from Johns Hopkins University in chemical engineering. His research is focused on the influence of blood flow on clotting mechanisms. He also does research on mechanisms of cancer metastasis via blood platelets.



OGI's Center for Spoken Language Understanding (CSLU) has become a world-renowned academic research center focusing on speech and language technologies, including speech recognition, computer-generated speech, and voice transformation. Since 2000, when Jan van Santen became CSLU director, he, Dr. Hosom, and Dr. Roark have parlayed the ETIC investment into more than \$11M of federal and business funding.

Annually, Drs. van Santen, Hosom, and Roark have provided employment to 10 to 15 postdoctoral fellows, programmers, and graduate and undergraduate student assistants. The ETIC investment has enabled CSLU to add a new branch to its activities: Creating new speech and language technologies for neurologically based disorders such as Parkinson's Disease and autism. For example, CSLU received a \$2.9M grant from the NIH for new technologies for diagnosis of autism. This establishes CSLU as the leader in this new and exciting area and capitalizes on OHSU's strengths in these disorders.

The Center's research could lead to a new Oregon industry that provides low-cost solutions that allow caregivers and teachers to better help individuals with neurological disorders. An example is BioSpeech, which creates products from intellectual property generated by CSLU and has already received \$350K in federal funding.



The Center for Spoken Language Understanding, the Adaptive Systems Lab, and the Point-of-Care Laboratory are planning for development of a new institute, to be called the ***Institute for Neurobehavioral Engineering***. This new institute will capitalize on the combined strengths of these three units--drawn from OHSU's Departments of Computer Science & Electrical Engineering and Biomedical Engineering--to exploit new research opportunities. Already significant federal and corporate funding has been received for research in these new areas.