



OREGON  
HEALTH & SCIENCE  
UNIVERSITY

## DESCRIPTION OF MEDICAL INFORMATICS RESEARCH PROJECTS

**ELLIS BOUDREAU AND RUIKANK WANG.** Learn first-hand how basic physics and engineering principles can be applied to healthcare problems. Optical imaging is a state-of-the-art, non-invasive method of capturing three-dimensional images of microcirculation within tissue beds. This project will involve processing the raw image dataset using Matlab in order to obtain meaningful results on blood perfusion and how the blood perfusion is related to the pathological conditions in animals and humans. Statistical analyses of the results among subjects of different populations will also need to be done. A student working on this project will join a research team of 15 scientists with interdisciplinary backgrounds including graduate students.

SKILLS: None Specific

**JAYASHREE KALPTHAY-CRAMER (WITH BILL HERSH).** Assist with the organization of the annual ImageCLEF medical retrieval challenge ([www.imageclef.org](http://www.imageclef.org)). Tasks include data analysis, report generation.

SKILLS: Data analysis, excel. Programming skills, especially Ruby on Rails recommended.

**JAYASHREE KALPTHAY-CRAMER.** Work on the use of image processing for the segmentation of tumors for applications in radiation oncology. This intern could also work on the development and maintenance of a training website for radiation oncologists.

SKILLS: Programming (MATLAB, C++ or web development) highly recommended.

## **KAREN EDEN AND REBECCA BLOCK**

1. Assist with a literature review on fertility preservation for female cancer patients.
2. Work with investigators and a computer programmer in designing a patient decision aid on fertility preservation.
3. Meet with patients to get feedback on various versions of the decision aid.

SKILLS: Social science background; good communicative skills; good familiarity with health information websites for patients.

**JUDITH R. LOGAN.** Automatic retrieval of pathological concepts from text pathology reports from biopsies taken during GI endoscopies, using the caBIG component, caTIES. Initial problems will have been identified and the goal will now be to implement this for real-time processing of HL7 results messages.

SKILLS: Scripting language on UNIX/Linux

**HOLLY JIMISON.** Developing coaching protocols for computer assisted monitoring and interventions for older adults in the home.

SKILLS: None Specific

**HOLLY JIMISON.** Cognitive Assessment via computer interactions for home monitoring: Assessment of cognitive metrics derived from computer game analysis and keyboard/mouse interactions.

SKILLS: Programming skills required, MatLab experience preferred.

**SUSAN WOODS.** Patient experience with shared access to the electronic medical record. Qualitative study of VA patients who have downloaded portions of their electronic record using a secure web-based PHR.

SKILLS: experience or interest in qualitative methods.

**SUSAN WOODS.** Exploratory study of PHR users and usage. Prospective cohort study identifying factors related to use of the VA personal health record, MyHealthVet, among authenticated patients.

SKILLS: experience or interest in survey research and analysis, examining barriers and drivers of PHR use.

**PAUL GORMAN.** Software engineering projects involving developing web based tools for patients to manage their health information and medications.

SKILLS: Requires experience with software development, especially web-based applications.

**PAUL GORMAN.** Studying the interaction between clinicians and the information and information technology, including laboratory type experiments with health professionals or students and coding video of ICU and operating room team interactions.

SKILLS: Requires background and interest in cognitive science or areas related to socio-technical or STS (science and technology studies).

**DAVID DORR.** Care Management Plus: effects of technology. Explore the effects of a system of care for older adults by analyzing core clinical measures from a set of outcome variables; OR, complete a qualitative study of the effects of the model of care.

SKILLS: Data analysis.

**DAVID DORR.** Care Management Plus information system personal health record. Identify, design, and test appropriate personal health record systems for older adults and integrate with current existing project.

SKILLS: None specific.

**JOAN ASH.** Clinical Decision Support in Community Hospitals. A qualitative cross-site study of computerized provider order entry with clinical decision support followed by a national survey.

SKILLS: ethnography/medical anthropology background and/or experience with interview survey research.