

DOCTORAL RESEARCH OPPORTUNITY IMAGE ANALYSIS APPLIED TO DIABETIC WOUND CARE

The WPI ECE Department has an opening for a doctoral student (ECE or CS) to join a newly formed research team funded by a 4 year NSF grant, starting in Fall 2011. The PhD student will part of an interdisciplinary environment and will be interacting with faculty from Computer Science and Management Departments at Worcester Polytechnic Institute, as well as with physicians and clinical researchers from Univ. of Massachusetts Medical School.

Research Project Goals:

Develop an Android smart phone application, the key component of which is a wound image analysis algorithm to analyze the progress (healing and detection) of foot ulcers from images taken by patients using the phone camera.

- The wound image analysis algorithm will automatically determine wound size and color, from which healing progress can be quantified.
- Current wound images will be compared to previous images so that new wounds can be automatically recognized
- All software must run on an Android smart phone using the host camera flash system (to provide moderate lighting and setting control)

Efforts during the first year will include the development of competing image analysis tools that can process a sequential set of color wound images and track the boundaries of a diabetic wound with automatic seed point generation, color separation and color correction tools to segment the wound into tissue categories, and image co-registration method when the sequence of wound images is poorly aligned.

Desired skills:

- Strong image analysis and mathematics skills, ideally both from classroom and project experience
- Experience in Matlab, C and C++ and Java programming
- Good technical writing skills and oral communication abilities
- Willingness to interact with clinical personnel and occasionally patients

Further information:

Contact Peder C. Pedersen, Professor of Electrical and Computer Engineering, (pedersen@ece.wpi.edu) for details regarding this position. For additional information regarding graduate studies in ECE at WPI, see: <http://www.wpi.edu/academics/ece/gradprograms.html>.