

**School of Electronic and Computing Systems  
COLLEGE of Engineering and Applied Science**

**SUMMER RESEARCH OPPORTUNITIES  
FOR UNDERGRADUATE WOMEN**

**APPLICATION DEADLINE: March 1, 2013**

*The School of Electronic and Computing Systems is pleased to offer the following research project for the summer of 2013. Interested students are urged to contact the faculty member(s) directing the project that most interests them. By contacting the faculty member, you can discover more about the project, learn what your responsibilities will be and, if possible, develop a timetable for the twelve-week research period.*

**PROJECT TITLE: Smart Phone Medical Diagnostics and Athlete Monitoring With a Wearable Electronic Patch"**

**Professor Jason Heikenfeld  
School of Electronic and Computing Systems  
824 Rhodes Hall  
Cincinnati, OH 45221-0030  
Tel: (513) 556-4763  
Fax: (513) 556-7326  
Email: heikenjc@ucmail.uc.edu**

**Project Description**

Imagine...

- \* your smart phone continually mapping the effect of life-style choices on your health;
- \* paramedics with a simple wrist-strap device to determine stroke treatment in mere minutes;
- \* clinical studies of systematic drug response vs. time using a patch that costs <\$15 per patient.

All of this, and more, is possible if we can conveniently sample and detect the huge library of biomarker molecules circulating within the body. Unfortunately, blood or implantable sensor access will always bear cost and significant risks. Collection of saliva, urine, and breath can be awkward and highly prone to contamination. In contrast, sweat can easily be accessed non-invasively.

After 2 years of significant preliminary work, our academia/industry/federal consortium has established a long-term goal of developing a cadre of compelling sweat sensing devices based on innovative sensor design, flexible electronics, and state-of-the-art information processing technologies.

See UC Press Release: <http://www.uc.edu/news/NR.aspx?id=17241>

**Student responsibilities: develop test protocols for electrical sensing of biomarkers here at UC and with our collaborators at Air Force Research Labs (WPAFB, Dayton).**