

Announcing the
Final Examination of
Katie A. Siek
for the
Degree of Doctor of Philosophy in Computer Science
Monday, 24 July 2006, 10am
Lindley Hall 101

Dissertation: **Design and Evaluation of an Assistive Application for Dialysis Patients**

Medical informatics, broadly defined as the integration of information technology in health care, is revolutionizing all aspects of medicine from electronic medical record systems to portable systems that assist clinicians with medical decision-making and data entry. The human-computer interface issues in medical informatics are particularly interesting because there are often diverse user groups with different requirements for the same application (i.e., clinicians and patients).

In this talk, I present Dietary Intake Monitoring Application (DIMA), a patient-centered application designed to assist dialysis patients in monitoring their dietary needs. Dialysis patients who do not comply with their dietary restrictions run the risk of undergoing additional emergency dialysis, hypertension, pulmonary edema, and death. Currently, patients try to remember their fluid and sodium consumption or record it in a food diary. However, these techniques fail in 80% of dialysis patients. To improve patients' ability to record their fluid and sodium consumption, DIMA allows patients to record this information using a personal digital assistant.

The varying levels of patient literacy and computing skills present a particular challenge for the design of DIMA. Furthermore, user studies must be conducted in dialysis wards, which are small, stressful, prohibit audio/video recordings, and change rapidly without warning. In this talk I discuss methods we developed to make patients more comfortable using DIMA in their everyday lives, our framework for usability studies in non-traditional environments, and interface design issues for people with varying literacy skills. I conclude the talk by discussing future research directions in non-traditional environment evaluation techniques for interdisciplinary projects.

Outline of Studies

Major: Computer Science
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Educational Career

M.S., Indiana University, 2004
B.S., Eckerd College, 2000

Committee in Charge

Prof. Kay H. Connelly, Chairman, (812) 855-0739, Computer Science
Prof. Randall Bramley, Computer Science
Prof. Dennis Gannon, Computer Science
Prof. Yvonne Rogers, School of Informatics

Approved: _____
Prof. Kay H. Connelly

(Any member of the Graduate Faculty may attend. As a courtesy, please notify the Committee Chairman in advance.)