Report on Distinguished Visiting Fellow Professor Katie Siek, June-Aug 2015

Host: Marilyn McGee-Lennon

Email address: marilyn.lennon@strath.ac.uk

Institution: University of Strathclyde Glasgow, UK

Additional host(s) (Name and Institution only):
Maria Wolters, University of Edinburgh, Wendy Moncur, University of Dundee.

Proposed Academic Visitor: Katie A. Siek

Home Institution: Indiana University, Bloomington, Indiana USA

Visit dates: 25 July 2015-22 August 2015

SICSA research theme(s) this visit was applicable to: Human-Computer Interaction, Digital Health

About Katie Siek
Katie A. Siek is a tenured Associate Professor in the School of Informatics at Indiana University. Her primary research and teaching interests are in health informatics, human computer interaction, and pervasive computing. She is most well known for her work in designing, developing, and deploying interventions that empower underserved lay populations to manage their everyday health. This research has been coined as Wellness Informatics by Dr. Siek and Dr. Beki Grinter (Georgia Tech) or, most recently, as proactive health informatics. She collaboratively created the Dietary Intake Monitoring Application (DIMA) and the Colorado Care Tablet. DIMA is a mobile application that assists people with end stage renal disease, who have varying literacy skills, manage their strict diets. The Colorado Care Tablet is a Personal Health Record (PHR) that assists older adults and caregivers manage and communicate their medication needs to other caregivers and health professionals. More recently, she has investigated: (1) how low socioeconomic status families can use a custom mobile phone application to improve their snacking habits and (2) how we can leverage the Maker movement to make plug-and-play interfaces for children to create their own personal, wearable health sensing and visualization pieces. Her research is supported by the National Institutes of Health (NIBIB – co-PI), the Robert Wood Johnson Foundation (Project HealthDesign – co-PI), and the National Science Foundation (SHB – PI) including a five-year NSF CAREER award. She was awarded a CRA-W Borg Early Career Award (2012) and a Scottish Informatics and Computer Science Alliance Distinguished Visiting Fellowship (2010). Prior to returning to her alma mater, she was a professor for 7 years at the University of Colorado Boulder. She earned her PhD and MS at Indiana University Bloomington in computer science and her BS in computer science at Eckerd College. She was a National Physical Science Consortium Fellow at Indiana University and a Ford Apprentice Scholar at Eckerd College.

Purpose of the visit
The aim of the visit was to *investigate how we can design systems that empower women to reflect and take appropriate actions to maintain healthy mental wellbeing during pre-, peri-, and postnatal time periods.* Professor Katie Siek is currently investigating the information needs of low-resource pregnant women funded by an internal research grant at Indiana University. A recurrent theme in this research is postpartum depression. Women wish they were made more aware of the risk before they had their child so that they could better prepare themselves and their care network. Currently, Katie is working with a Ph.D. student on a larger, design study to investigate what and how this information should be presented to women during and after pregnancy. The SICSA Distinguished Visitor fellowship will provide Dr. Siek with the opportunity to work with experts in the area of mobile interventions for health – especially in collaborating with larger care networks and wearable systems (Marilyn McGee-Lennon at Strathclyde) and mental health (Maria Wolters at the University of Edinburgh). Through these collaborations, we will explore best practices in designing systems to maintain one's mental health and share selected information with one's care support network (e.g., extended family, local friends). She will also meet with Wendy Moncur at the University of Dundee to discuss the relationships between co-existing entities related to life transitions – such as birth.

Interactions, activities and collaborations
(Week 1) Week of August 3: Katie visited Marilyn McGee-Lennon at the University of Strathclyde which included a lunch with faculty Mark Dunlop, Martin Halvey, and Emma Nicol. On Tuesday, August 4, she had a tour of the undergraduate projects that included a sensor for shoes to understand where people are putting the most pressure on their feet, a social networked integrated happiness tracker, an application to help new mother's postpartum, and a system to assist people with coding. On August 5, she gave a talk about her research at the University of Strathclyde to about 20 people from computer science, information science, and healthcare.

(Week 2) Katie met with Babis Kyfonidis, a PhD Student of Marilyn McGee-Lennon's to discuss his diabetes project where he is investigating how to help children 3-6 years old who have diabetes learn some key concepts about their disease - namely the interplay between insulin, food consumption, and exercise. Through these discussions, we brainstormed perhaps instrumenting physical objects (e.g., plastic food replicas, insulin, a representation of exercise) with sensors to help children play and visualize how food, exercise, and insulin work together. We also discussed ethnographic methods to investigate how health care providers currently teach children with physical objects about their disease. Finally, Katie spoke with Babis about high fidelity prototyping the physical system via arduino and Scratch4Arduino. Katie also met with Marilyn McGee Lennon where we discussed organizing a workshop at the Computer Human Interaction conference in 2016 about participatory design/co-design methods.

(Week 3) Katie met with Maria Wolters at the University of Edinburgh and discussed research about the need for a safe environment for people in vulnerable positions (e.g., mental health issues, eating disorders, miscarriage) to talk about health related topics on social media - since that is where they are going to develop a community anyway. On Tuesday, August 18, she gave a talk about her research at the University of Edinburgh to 24 researchers in the medical school. After the talk, she met with Mike Just (Heriot-Watt University) and Lynne Baillie (Glasgow Caledonian University) to discuss research ideas around wearable and embedded computing to improve rehabilitation, making with older adults, and privacy concerns related to health technology. Katie met with Maria Wolters and Dr. Petra Boynton, Agony Aunt in The Telegraph's Wonder Women column, to discuss how to get science to the general public for better broader impacts in research/grant funding. During these talks, Maria, Petra, and Katie discussed the possibility of creating an online training module to help clinical professionals work with families who have experienced miscarriage and infant loss. Katie also started working with Marilyn McGee-Lennon, David McGookin, Orit Shaer, Audrey Girourd, and

Peter Bennett on a CHI 2016 workshop proposal about Tangible User Interfaces in Healthcare. Katie had a discussion with Wendy Moncur and her lab to discuss research and ethics.

(Week 4) Katie met with Wendy Moncur at the University of Dundee to discuss at CHI 2016 workshop proposal on Life Transitions. They made a mind map to guide the discussion and define life transitions. Katie gave a talk to 18 people at the University of Dundee and met with Chris Lim, a Lecturer in the Product Design & Interaction Design to discuss design methods and teaching design to students - especially non-majors. Afterwards, she met with Wendy Moncur to finalize a CHI workshop proposal.

Completed Programme of Activities

July 31-August 1: Travel from Bloomington, Indiana, USA to Glasgow, Scotland
August 1-August 14: Work with Dr. Marilyn McGee-Lennon at the University of Strathclyde
August 5: Give master class in Designing Health Interventions for Underserved Populations at the University of Strathclyde
August 14-August 29: Work with Dr. Maria Wolters at the University of Edinburgh
August 18: Give master class in Designing Health Interventions for Underserved Populations at the University of Edinburgh
August 21-August 23: Travel with Dr. Maria Wolters to London, England to meet with Dr. Petra Boynton
August 26-August 27: Visit Dr. Wendy Moncur at the University of Dundee and give master class in Designing Health Interventions for Underserved Populations (8/26)
August 29: Travel from Edinburgh, Scotland to Bloomington, Indiana, USA

Continuing work and new collaborations

Katie's visit to Glasgow significantly affected Marilyn's PhD student Babis work and this most likely would not have happened online via email or skype. In addition, their CHI workshop proposal was successful and this is the leading HCI conference and therefore the face to face collaboration was valuable for advancing the workshop ideas. Katie's visit to Edinburgh was also instrumental for establishing collaborations that will both result in grant proposals to UK funding agencies and in sustainable approaches to ensuring the wider impact of research findings. Much of eHealth and health research progress is still not being translated into practice. eLearning for continuous professional has substantial potential for achieving impact, and the face to face meetings with Dr Boynton and the eHealth team from the University of Edinburgh were crucial for kick-starting solid collaborations that can continue and flourish over a distance.

Siek's visit to Dundee deepened the collaborative relationship with Moncur generated during her previous SICSA-funded visit. Time was spent developing a proposal for a journal special issue on HCI across life transitions, drawing on Siek and Moncur's complementary expertise. Siek also delivered a very well-received seminar (bit.ly/1KHlVkF) at the University of Dundee on 26 August 2015. The seminar was attended by over 25 staff and students from Duncan of Jordanstone College of Art & Design and the School of Computing at the University of Dundee, and by members of the Social Dimensions of Health Institute from both Dundee and the University of St.Andrews.

Expenses Incurred:

Travel between US and Scotland: £600
Travel within Scotland: £100
Accommodation & Subsistence: £2,400

Total: £3,100

What other sources are contributing to funding for this visit?

Katie Siek proposed using research funds from Indiana University and the NSF to cover extra costs.