

Two-day doctoral seminar, Tuesday 28th and Wednesday 29th April 2015

Organized by:
Graduate School on Software Systems and Engineering (SoSE)
University of Oulu, Department of Information Processing Science
www.sose.oulu.fi

Designing Behavior Change Technologies using Sensors, Smartphones and Cloud

Prof. Samir Chatterjee, Claremont Graduate University, Claremont, CA, USA

The seminar is open for all. Please register in advance: liisa.kuonanoja@oulu.fi

Date and venue:

Tuesday 28th April, 9.15-14.45, IT106

Wednesday 29th April, 9.15-14.45, IT106

The classroom is at University of Oulu, Ympäristötietotalo, Paavo Havaksentie 3, 90570 Oulu.

Brief Course Description

The world's population is aging. While people are living longer, they are also suffering from many chronic diseases. Obesity, diabetes, congestive heart failure, COPD and stress/anxiety to name a few are becoming common throughout the world in older adult population. Lifestyle and behavior change has quickly become the biggest challenge in medicine. This short course will be taught by Prof. Chatterjee whose lab is at the forefront of designing remote monitoring technologies that can assist such patients to live healthy and age in place with technology support. His team has developed several persuasive technologies to modify human behavior that are impacting peoples' lives. The techniques discussed here is also applicable to behavior change in other domains such as energy conservation, water usage etc.

In this course, he will describe step by step how you first understand the problem you are dealing with. Then he will cover design principles and theories that guide your design solution. He will cover the basics of sensors, cloud computing and smartphone apps. He will help you understand how you design healthcare interventions. He will also discuss how to mine Big Data from healthcare to develop predictive analytic models that can help hospitals address readmission problems. How to test and evaluate such technologies in the real world will be discussed. The challenges of doing research with patients will be covered. Finally he will discuss how you can conduct translational research by converting the work in lab to commercial settings with venture capital and markets.

Required Readings:

1. Gilles Virone, Majid Alwan, Siddharth Dalal, Steven W. Kell, Beverly Turner, John A. Stankovic, Robin Felder, "Behavioral Patterns of Older Adults in

Assisted Living”, IEEE Transactions on Information Technology in Biomedicine, Vol. 12, No. 3, May 2008.

2. S. Chatterjee, Jongbok Byun, Akshay Pottathil, Miles Moore, Qi Xie, Kaushik Dutta, “Persuasive Sensing: A Novel In-Home Monitoring Technology to Assist Elderly Adult Diabetic Patients,” in Proc. 7th International Conference on Persuasive Technology 2012, June 6–8, 2012, Linköping, Sweden.
3. Ala Alluhaidan, Nagla Alnosayan, Edward Lee, Samir Chatterjee, Linda Houston-Feenstra, Wayne Dysinger, Mercy Kagoda, “Designing Patient-Centered mHealth Technology Intervention to Reduce Hospital Readmission for Heart-Failure Patients”, in Proc. of IEEE 48th Hawaii International Conference on System Sciences (HICSS), Jan 5-8, 2015, Kauai.

Supplemental Reading:

- Shirley Gregor and Alan Hevner, “Positioning and Presenting Design Science Research for Maximum Impact”, MIS Quarterly, Jun 2013, Vol. 37 Issue 2, p337-A6. 25p
- S. Chatterjee, “Writing my Next Design-Science Research Master-Piece: But How Do I make a Theoretical Contribution to DSR?”, in Proc., ECIS 2015, Munster, Germany, May 26-29, 2015.

Schedule:

Day 1 Tuesday 28th April

Time	Topic
9:15 am – 10:15 am	Introduction to Sensors, Smartphones and Behavior Change with Persuasive technology
10:15 am – 10:30 am	Coffee Break
10:30 am – 11:45 am	Design Science & Problem Solving
11:45 am – 12:45 pm	Lunch
12:45 pm – 1:45 pm	Design & Architecture of In-Home Monitoring IT Systems – An Example with Cardiac Patients
1:45 pm – 2:45 pm	Task assignment, Group formation & brainstorming

Day 2 Wednesday 29th April

Time	Topic
9:15 am – 10:15 am	Evaluation Methods – Planning Trials
10:15 am – 10:30 am	Coffee Break
10:30 am – 11:45 am	Activity Detection, Working with Sensors, developing smartphone apps

11:45 am – 12:45 pm	Lunch
12:45 pm – 1:45 pm	Using and Building Theory/ Maximizing Research Contributions
1:45 pm – 2:45 pm	Groups sharing their prototype results and evaluation methodology

Speaker bio:

Dr. Samir Chatterjee is a Professor and Fletcher Jones Chair of Technology Management and Design at Claremont Graduate University. He has published over 110 peer reviewed articles in IS and Computer Science area. He serves on the editorial board of MIS Quarterly, Health Systems, Journal of AIS and IJBDCN. He is the author of the best-selling book on Design Research in Information Systems and is the founding father of the DESRIST conference. He regularly serves as chair or member of the technical program committee on numerous IEEE, ACM and AIS conferences. His research has been heavily funded by NSF, MDTRC, Georgia Research Council, Loma Linda Hospital, Northrop Grumman, and The California Endowment. He is Founder & President of DCL, a wireless healthcare startup. When he is not doing science and design, he is an avid musician and tours with his fusion band throughout the USA performing at various concerts. He lives in Southern California with his wife and son.