



Training & Research Course  
**ICT Assisted Methods for Measuring Diet & Behaviour  
in Complex Foodscapes**

August 24-27, 2015

Aalborg University  
**Frederikskaj 10**  
**Room FKJ 10A/2.160**  
Copenhagen  
Denmark

**Why this course?**

Measuring and monitoring lifestyle-related health behaviours with easy-to-use portable intelligent devices, also known as portable forms of interactive computer technology (ICT), has gained interest and popularity worldwide. Increased accessibility of these mobile technologies, including smartphones, personal digital assistants and touch pads (ultra-portable computers), has made them more feasible for use by consumers for self-monitoring but also by researchers and health care service providers for monitoring health behavior, compliance and effectiveness. Mobile technologies can be used in a co-creation mode where users provide input and actively participate in the co-creation of service, care and best practice. Examples of signals and protocols that offer such functionality range from text messaging to GPS tracking, mobile positioning, Wi-Fi and Bluetooth. The novel technologies allow for detailed analysis for example of patterns of physical activity, food intake, addictive behaviours and environmental exposure either in real-life or simulated, virtual settings to study new choice architectures that aim to facilitate healthy choice.

This course explores novel easy-to-use portable intelligent technologies and features leading scientists across the globe. The course demonstrates new combinations of scales, smartphone technologies, near field communication and picture- and voice recognition to estimate food intake and to facilitate meal ordering processes. It will showcase examples of how the novel technologies can best be used in different food environments ranging from hospitals to private settings where measuring food intake is important. The course will be highly interactive to provide the participants with hands-on experience with the new devices and novel technologies.

The course is organized by Aalborg University in cooperation with the University of Eastern Finland and in context of the FoodServInSPIRe, Foodtura, Food4Growth and dVices4Food projects. The project has been supported by Nordic Council of Ministers, Danish Agency for Science, Technology and Innovation and the Welfare Tech foundation

**Aim of the course**

This course aims to demonstrate the range of novel easy-to-use portable forms of interactive



computer technology (ICT) that can be used for studying health behaviours, dietary intake, meal ordering and consumer choice. The course provides insight into the use of novel technologies that can:

- Automate dietary intake assessment and thereby allow for automated estimation of nutritional intake as well as for food waste and environmental impact of food choice
- Facilitate the co-creation of nutritional care in social and health care services through the use of portable intelligent devices
- Simulate supermarket and buffet food choice architectures to facilitate the design of health-enhancing food landscapes (foodscapes).

### **Format of the course**

The course is organized as a 4-day post-graduate level workshop held at Aalborg University supported by an online learning environment. The course features pre-course online learning tasks, in-class demonstrations of novel intelligent devices and technologies in use in the partner countries combined with scientific presentations on their application in the study of food behaviours, service and choice. First day of the course will include introduction to the course, expert presentations and demonstrations, small group tuition and team-building plus team working skills practice. During the next two days, student teams will work on cooperative learning tasks presented as case studies related to best-practice in using one of the demonstrated novel technologies. Fourth day of the workshop is reserved for collaborative knowledge-building and –sharing based upon team presentations on best-practice and novel solutions. Expert guidance in this day's session will be provided by the lecturers and researchers participating in this collaboration. The course will utilize a blended learning approach in a highly collaborative learning environment.

### **Learning goals**

Students in this course will be able to demonstrate knowledge on evidence-based best practice in the use of novel technologies in monitoring lifestyle-related health behaviours at the public and private level and for research purposes. Students will become part of a global network of practitioners and experts in the field of measuring and affecting health behavior and architectures in complex foodscapes through ICT assisted methods.

### **Programme & Lecturers**

#### *Pre-course learning tasks*

Getting to know each other. Online introductory learning tasks will be moderated according to Gilly Salmon's 5-stage model of e-learning with the aim to introduce the students to each other prior to the in-class sessions and to ease the future team-building and collaboration in class. These tasks are moderated by Irja Haapala-Biggs, University of Eastern Finland.

#### *Technologies you will work with:*

DIMS, Nu3monitor, eButton NANA, FoodScapeTracker (FST)



Technologies you will hear about:

VFCS, Eye4Food, IB, Heat Mapper

## Program

**MONDAY, AUGUST 24:**

### **9.30-10.30: Registration & light breakfast/coffee/tea**

10:30 – 11.30: *Introduction to the course. Presentation round. Moderated by Bent Egberg Mikkelsen.* Aalborg University & Irja Haapala-Biggs, University of Eastern Finland

### **Theme: Patients & Hospitals.**

11.30 – 11.50: *Why is it important to monitor intake among hospital patients?* Øivind Irtun, Professor Tromsø University Hospital.

11:50 – 12.10. *Monitoring intake among hospital patients – case of Huadong Hospital.* Jianqin Sun. Professor Fudan University Hospital.

12.15-13:15 *Lunch*

13.15 – 13.35 *Methods for monitoring intake in hospital foodscapes.* Dietary Intake Monitoring System (DIMS). ICT assisted dietary assessment at Aalborg Hospital. Kwabena Ofei. PhD, Aalborg University.

13.35 – 13.50 *Methods for monitoring intake in hospital foodscapes.* Handheld devices for hospital meal ordering process. Insight from the Food'n Go project. Jon Henningsen, Tachita.

13.50 – 14.05 *Methods for monitoring intake in hospital foodscapes.* The Nu3Monitor. Dual Sourced Assessment of Diet at hospital. Gamified tablet based sourcing of data on patient intake. Michal Dobroczynski, CEO, Syscore.

14:05 – 14:25 *Alimentarium – a new research infrastructure for food & devices at Aalborg University Hospital.* Henrik Højgård Rasmussen, Professor AAU & Mette Holst, Research coordinator, Aalborg University Hospital

14.25-14.45 *Coffee*



**Theme: Citizens & Communities.**

14.45 – 15.10 Using the e-button for measuring dietary intake in children: A formative study, Tom Baranowski, Professor, Baylor College, Houston

15.10 – 15.30 Tracking behavior in local community foodscapes. The FoodScapeTracker – studying movement in food environments using smart phones, Sagar Koirala & Frantisek Sudzina, Assoc Prof. Aalborg University.

15.30 – 15.55 Measuring food intake in older adults using the NANA touchscreen technology, Faustina Hwang, University of Reading,

15.55 – 16.25 Heat mapping the food choice dynamics at the buffet. Rikke Gade, PhD student, Aalborg University

16.25 -16.55 The eButton – the technology behind, Wenyan Jia, Pittsburgh University

16.55 -17.15 Practical Instructions for next day.

**TUESDAY, AUGUST 25:**

**Morning:**

**Meet at Frederikskaj 10a – room2.160)**

**9:00 Morning:**

Track A Work with NANA, DUSAD, Food'nGo and DIMS1.2 in Living Lab Herlev Simulation Lab, Supervised by Irja Haapala-Biggs, Faustina Hwang and Michal Dobroczynski

Track B: Work eButton and FoodScapeTracker in Living Lab Kongens Enghave, Supervised by Wenyan Jia and Karina Pawlovski,

**Lunch**

**Afternoon**

Track A Continued work in Living Lab Herlev Simulation Lab (DIMSi)



Track B: Continued work in Living Lab Kongens Enghave

### WEDNESDAY, AUGUST 25:

#### Morning:

- 10.15 Visit to Bystævneparken 15, 2700 Brønshøj (tlf. 28 27 42 60) 1. Welcome. 2. Foodscape Walkabout to kitchen and ward. 3. Mini workshop: "Intelligent solutions for Nutritional care. Presentations from Vision People, Tachita, Syscore and Obrigado. Our host is Chief Catering Manager Karin Bredgård
- 12.45 Lunch hosted by Bystævneparken

#### Afternoon

- 14.30 Track A Preparing presentations for plenary. Track B: Preparing presentations for plenary
- Evening: Preparing multicultural dinner in FoodScape Lab

### THURSDAY, AUGUST 27:

**Venue: Frederikskaj 10a (room 2.160?)**

#### Morning: Lectures

9:00 – 9:25 *Mobile technologies for self-reporting of food intake and life style behaviours - weight management using mobile phone technology.* Irja Haapala-Biggs, University of Eastern Finland

9:25 – 9:50 *The Intelligent buffet. Why know who eat what, in which amounts and when,* Michal Dobroczynski, CEO, Syscore.

9:50 – 10:15 *The Eye4Food – detecting the focus of attention at the buffet.* Bent Egberg Mikkelsen, professor Aalborg University

10:15 – 10:40 *Gamifying and simulating food environments.* Virtual reality in health promotion. Case of the Virtual Food Choice Simulator (VFCS), Stefania Serafin, Professor, Aalborg University.

10:40 – 11:05 *Gamifying nutrition education Overview of games for overview of games for nutrition education & dietary change,* Tom Baranowski, Professor, Baylor College, Houston



**11:05 – 11:25 Coffee break.**

11:25 - 13:00 Students Assignment. Plenary presentations. Estimated 5 groups

**13:00 Lunch**

**Afternoon**

14:00 Students Assignment. Plenary presentations cont'd

Feedback from supervisors

16.00 End of course

#### *Online learning tasks*

In addition to the pre-course introductory learning tasks, online personal learning portfolios will be used to support student learning throughout the course. Post-assessment and evaluation of the course will be carried out at the end of the course followed by a further assessment one month later in order to assess practical use of the material learned in this course. An ongoing network will be established for collaboration in the field of measuring and affecting health behavior and architectures in complex foodscapes through ICT assisted methods. Online learning tasks are moderated by Irja Haapala-Biggs, University of Eastern Finland.

#### *Assessment and certificates*

Summative assessment will be carried out in collaboration between the course leaders from Aalborg University and the University of Eastern Finland. Certificates upon the completion of the course and its learning assignments will be issued by Aalborg University.

#### *Registration*

You can register at this link. You will need to create a user account first.

<https://phd.moodle.aau.dk/course/view.php?id=468>



## TRAVEL INFORMATION:

### **Herlev hospital address (A track)**

Dansk Institut for Medicinsk Simulation - Herlev Hospital - 25. etage - Herlev Ringvej 75 - 2730 Herlev  
- Telephone: 38 68 43 69 – email: [dims@regionh.dk](mailto:dims@regionh.dk)

Go to the main entrance and take the elevator to 25th floor.

You have various public transportation possibilities:

<https://www.herlevhospital.dk/find-vej/transport/Sider/busser-og-tog.aspx>

### **Bystævneparken address:**

Københavns Madservice A La Carte, Bystævneparken 15, 2700 Brønshøj

Telephone: 38 27 42 60

Enter through the main entrance at the address.

You can use different transportation possibilities:

Bus 2a, S-train C or H, if you take the train you will have to walk a bit. If you do that and are in doubt on how to get there, please contact Karina Dorph Pawlowski (22 62 33 01) before take off.

### **Address to Kgs Enghave: (B track)**

The meeting spot will be AAU campus front desk