

Graduate & PhD Course: Measuring Dietary Behaviour the intelligent way, November 23-25, 2015, Shanghai

Zhichao Kuang
2015.11.24, Nordic Centre, Shanghai, China

Impressions from

**Food4Growth/dVices4Food
International Food&Devices
Week**



**Copenhagen, Denmark
August 24 – 28, 2015**





Learning in the campus

Section 1

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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

what is the ICT assisted Methods and how they work?

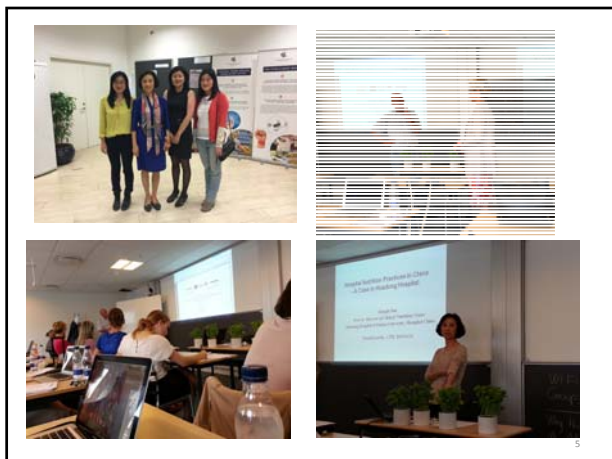
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ICT assisted methods for measuring diet & behaviour in complex foodscapes

- 4-day training course:
 - 5 credit PhD-level course
 - Day 1: introduction + expert lectures
 - Day 2: hands on experience on eButton, DIMS, and foodscape tracker
 - Day 3: hospital visit + presentation preparation
 - Day 4: expert lectures + presentations

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16 participants from different institutions

- Wageningen University, Netherlands
- Amsterdam University of Applied Sciences, department Nutrition and Dietetics, the Netherlands
- Karolinska Institutet, Section of Applied Neuroendocrinology
- Università della Svizzera italiana (USI) in Lugano, Switzerland
- Consumer Science and Health group of WUR-FBR
- Fudan University, Shanghai, China
- Metropolitan University College in Copenhagen
- Aalborg University
- Aalborg University Hospital

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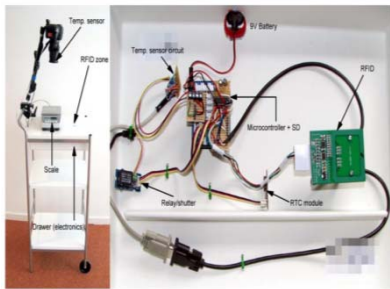
Techniques mentioned in the course & conference

- Dietary Intake Monitoring System (DIMS)
- Nu3Monitor
- eButton
- Foodscape tracker
- NANA touchscreen technology
- HeatMapping the buffet
- Virtual Food Choice Simulator

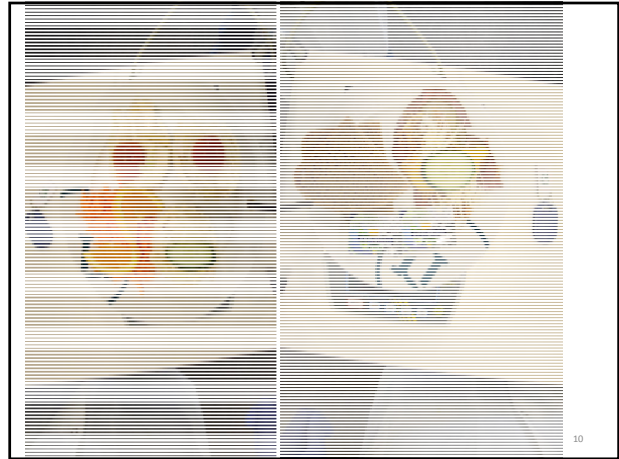
Answers

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Dietary Intake Monitoring System (DIMS)



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Nu3Monitor

– Taking DIMS to the next level

- DIMS 2.0:** new DIMS base system is ready and working
- New imaging system:** implemented, works
- New interface:** implemented

WHAT IS DIMS & NU3MONITOR?



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HOW IT WORKS

- 1) Put the meal on
- 2) Swipe identification transponder
- 3) Wait 1 second
- 4) DONE

View case

Identification	Pl. Weight	Pr. weight	Post weight	Total weight	Pre date	Post date	OK
7661330	71.4	71.4	88.1	88.1	2015.02.22.14.57	2015.02.22.14.58	OK

Pre-portion: 75g



Pre-portion: 88g



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eButton

We built a wearable computer eButton to document lifestyle and events



Model Design, 2008
 Version A, 2008
 Version B, 2009
 Version C, 2010
 Version D, 2011
 Version E, 2014, 75mm, 10g
 Version F, 2015, 55mm

eButton vs. smartphone

- can look around by itself
- is much smaller and lighter
- can be worn naturally on the chest
- lasts longer between recharging
- supports flexible designs for specific healthcare applications

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Foodscape tracker



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Track B ICT-devices in Community Foodscapes

- Aalborg University Tuesday August, 25 2015



Meals on Wheels
The effect of promoting & delivering Healthy Food by Foodtruck

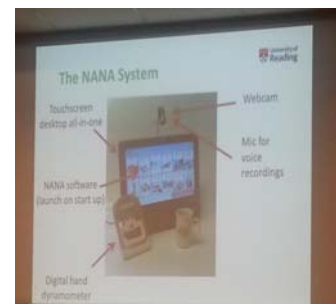


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NANA (Novel Assessment of Nutrition and Ageing)



Fig. 2. NANA system showing nutrition data entry.



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HeatMapping the buffet

Uncovering food choice dynamics

- What is our pattern of movement round the cafeteria? How much time do we spend each place? Who is interacting with who?
- These questions are important when researchers want to understand behavior in our daily foodscapes.
- And equally important when designers want to design our supermarket or canteen in a healthier way.
- Thorough analysis by hand is time consuming and expensive
- The HeatMapper is a convenient and cost effective automated alternative.



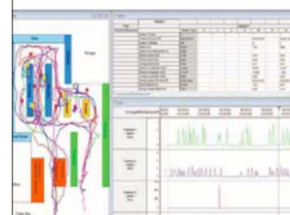
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HeatMapping the Buffet



Courtesy of Ekke Gode

Heatmapping the SuperMarket the Noldus tracklab approach



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Virtual Food Choice Simulator

The Virtual Food Choice Simulator



A snapshot of the VFCS reality take a tour

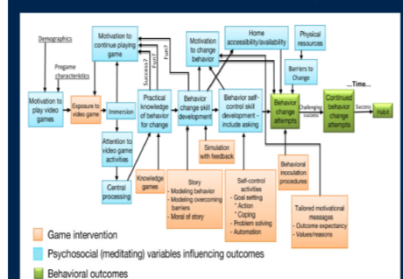


<https://www.youtube.com/watch?v=2e0b5FD0i28>

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Gamifying Nutrition Education


Model of how video games with component change procedures influence mediators to change behaviors



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Most interesting studies: Diab/Nano


- Comprehensive behavior change intervention
- Objective: increase FV, water, PA, ↓ screen time
- 9 hours of game play over 2 months
- Story encompasses minigames
- Extensive predication on theory
- Focus on multiple behaviors
- Extensive formative research



Ref: T Baranowski et al. *Am J Prev Med* 2008; 34(1):74-82

Most interesting studies: Saving the Kingdom of Fivalot


- Tests of behavior change procedures in game
- Objective: ↑ FV
- Story
- Systematically varied implementation intentions (action, coping, both, neither)
- Extensive formative research



Ref: D Thompson et al. *LBNPA* 2015, 12:39

Most interesting studies: Mommio

- Test of story or novella, separate from game
- Objective: ↑ V among preschoolers
- Train parents in V parenting practices
- Casual game on smartphone
- Extensive formative research



Ref: L Brand et al. *Games Health J* 2015, 4(4) 305-11

Thanks for your attention!

Yan Wang & Zhichao Kuang

2015.11.24

Shanghai, China

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