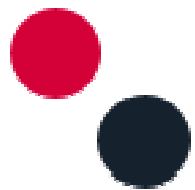


Location-Sensing Healthy Living Activity Adviser

Yuzhong Lin
PhD student
DDSS Group



design &
decision
support
systems

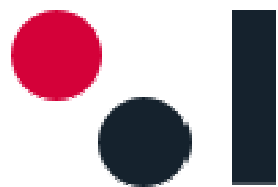
TU / **e**

Technische Universiteit
Eindhoven
University of Technology

Where innovation starts

About my research

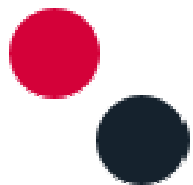
- Why?
- What?
- How?
- Now?
- Future?



design &
decision
support
systems

Physical Activities & Health

- 2005, 1.6 billion adults overweight
- 2015, 2.3 billion adults overweight (expected)
- How to prevent?
 - Diet
 - Physical activities



design &
decision
support
systems

How to promote exercise?

- **Persuasive technology**
 - **Computer**
 - **Social influence**
 - **Gaming**
- **Mobile persuasion**
 - **Mobile device: right time, right way**
- **Right place?**
 - **Location sensing technology**
 - **Environment & wellness**



Research question

“How can we promote exercise behavior by means of location-based services?”

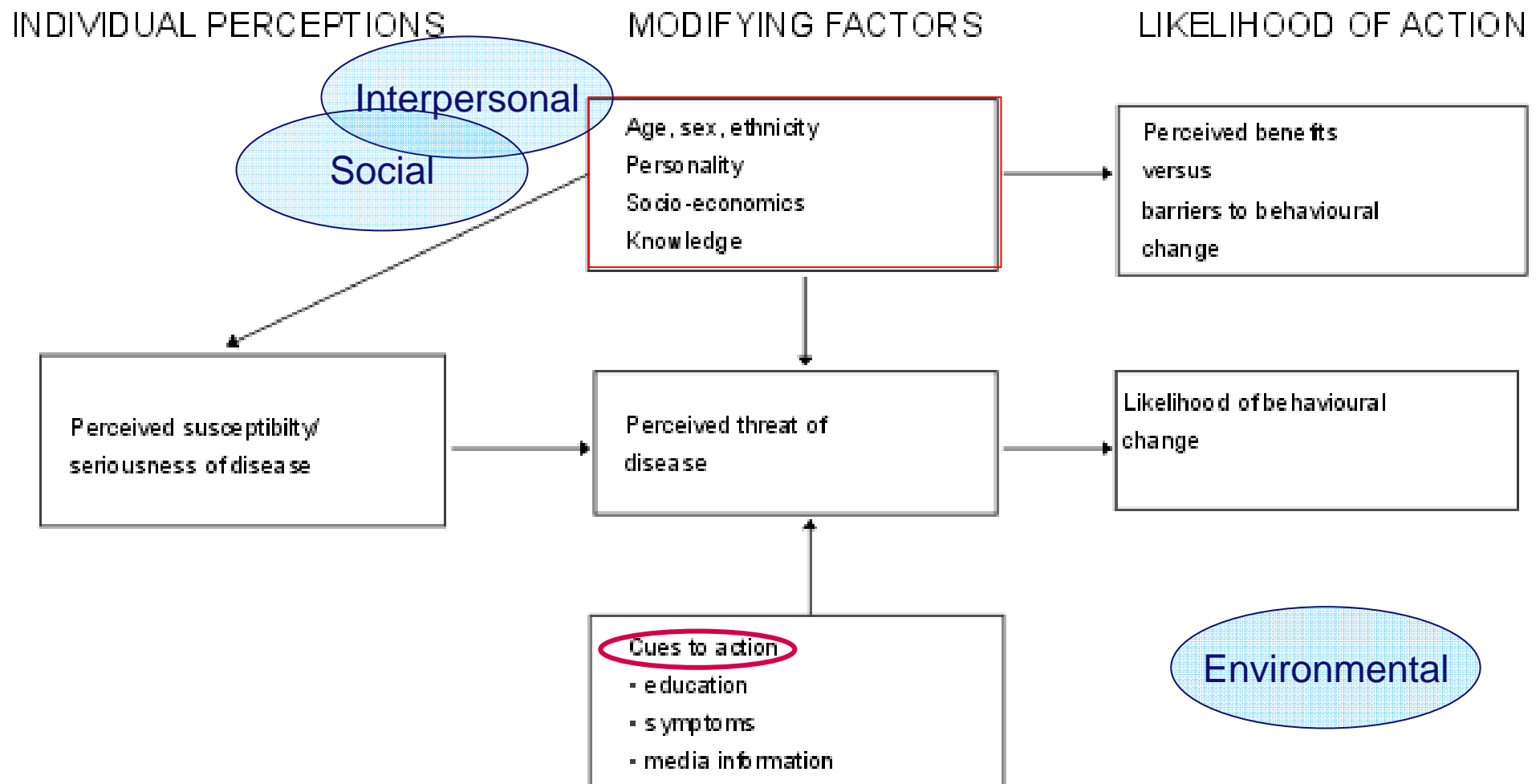
- **Develop a decision support system based on location & time information**
- **Test the potential of the approach in real-life situations**



Concept model

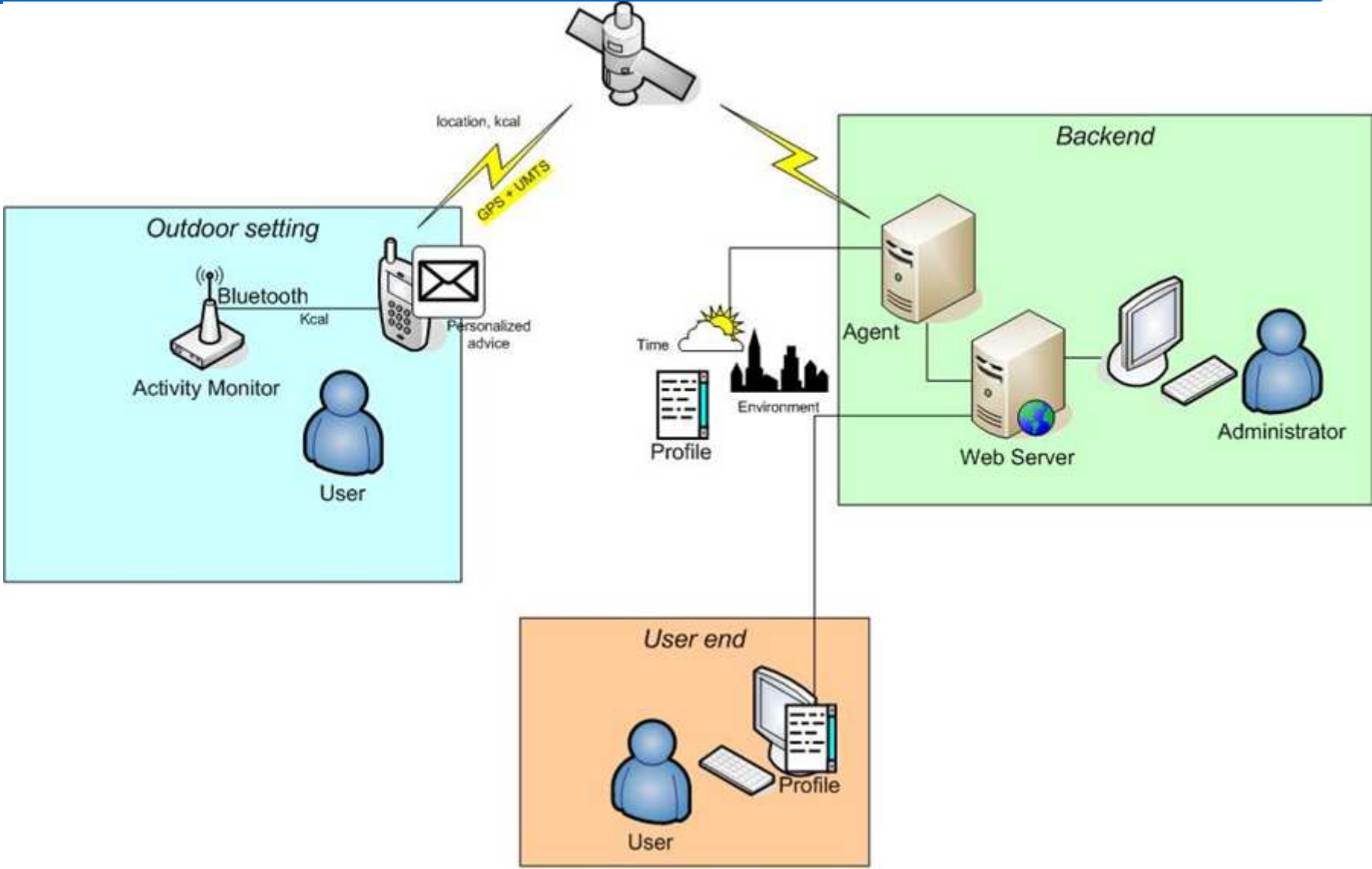
Health belief model

Conceptual Model



System Design

System Architecture

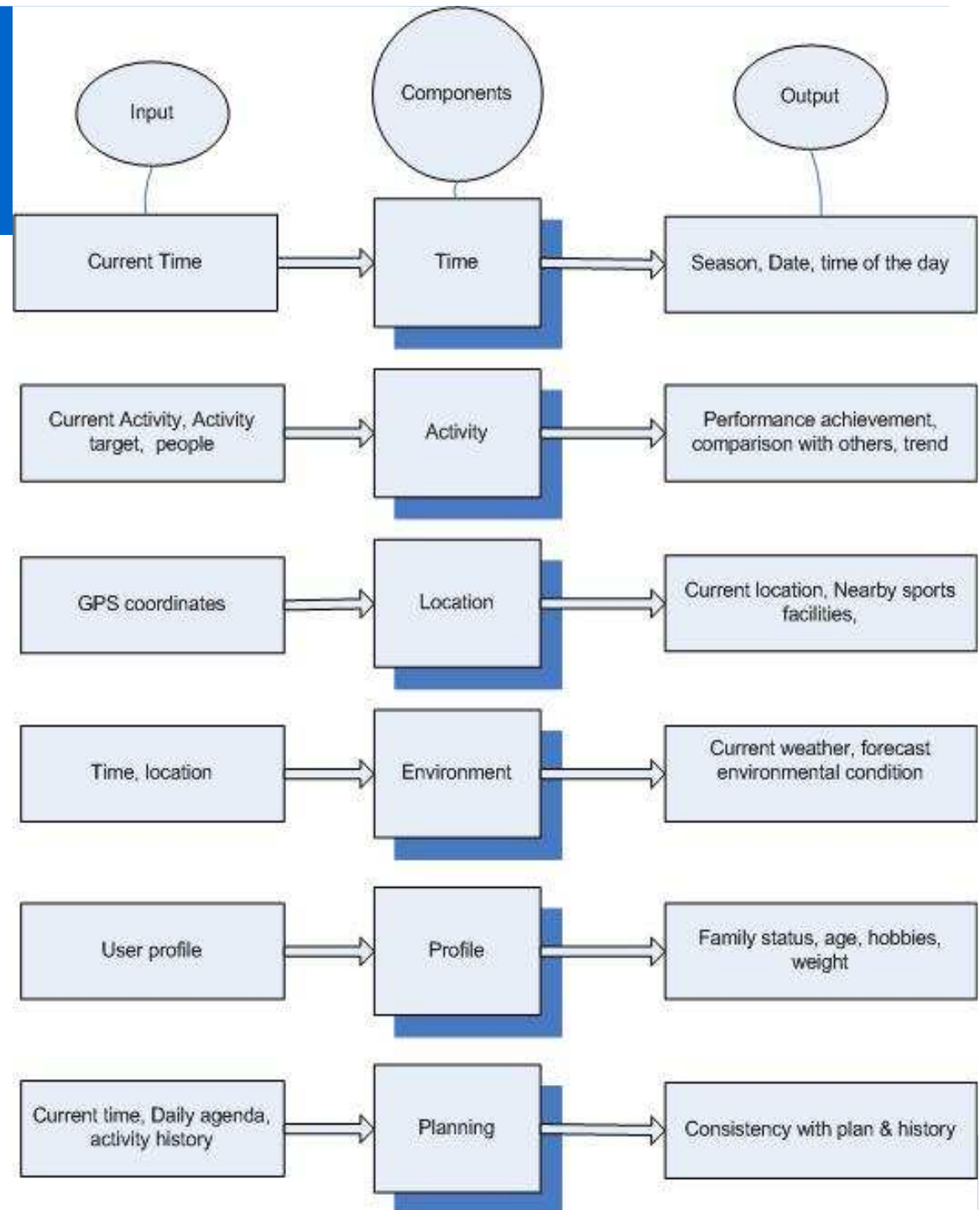


Components Overview

- Time
- Activity
- Location
- Environment
- Profile
- Planning



design &
decision
support
systems



Questionnaire design

- General exercising behavior
- Acceptance of the advice system

One a weekday, you are in your office during your lunch break. Your device beeps and it shows on its screen:

“You have met 25% of your target. How about taking the stairs with your colleague? If so, you will reach half of your target.”

Current performance
Group engagement

Time/location based
Encouragement



Questionnaire results

- 72 / 1800 (25% male, 75% female)
- 57% age 31-40
- 85% married or living together
- 53% part-time job, 30% full-time job

- Half
 - think they have enough activities,
 - want to be more active
 - want to get advices



Questionnaire Results Analysis

- **Exercise (>20 minutes) per week**
 - Average 3.8 days
 - 45% exercise > 5 days a week
- **Activities:**
 - Walking 68% (alone, frequently)
 - Cycling 55% (alone, frequently)
 - Housework 53% (alone, frequently)
 - Sports 32% (group, occasionally)

Questionnaire Results

- **Reason to exercise**
 - **Health & weight control**
 - **Stress relief & fun**

- **Factors motive you to exercise more?**
 - **More time (78%)**
 - **Affordability, companionship, nature (round 30%)**
 - **Get advice (15%)**

Questionnaire Results

- Acceptance to activity advices
 - 8% accept
 - 33% reject (various reasons)
 - 59% not sure, but have a try

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 performance			4,878	3	,181	
performance(1)	-,083	,242	,119	1	,730	,920
performance(2)	,470	,252	3,463	1	,063	1,599
performance(3)	,036	,246	,021	1	,884	1,036
location(1)	,623	,147	18,066	1	,000	1,864
group(1)	-,375	,164	5,250	1	,022	,687
encouragement(1)	,059	,163	,132	1	,717	1,061
Constant	,442	,142	9,732	1	,002	1,556

/ name of dep:

Further steps

- **“Wizard of OZ” Study**
 - Test the effect of “location-based” advices
 - Offline GPS Log
- **System development (software & hardware)**
- **Experiment**



Questions?

- **Thank you for your attention!**

