

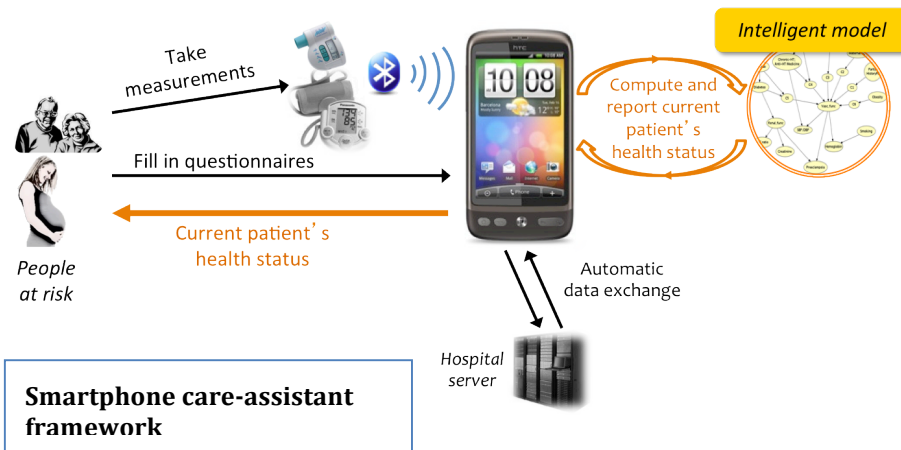
The Smartphone as a *Clever* Care-assistant

HEALTHCARE FACTS

- In 2050: around 2 billion people aged 60+ (WHO) ⇒ increased prevalence of disability & chronic diseases.
- A projected shortage of more than 4 million healthcare workers worldwide

SUPPORT NEEDED!
How?
 VIA
**THE SMARTPHONE &
 AI TECHNIQUES**

Turn the phone into a **clever personal care-assistant** such that clinical decision-making is provided to the patient at home.

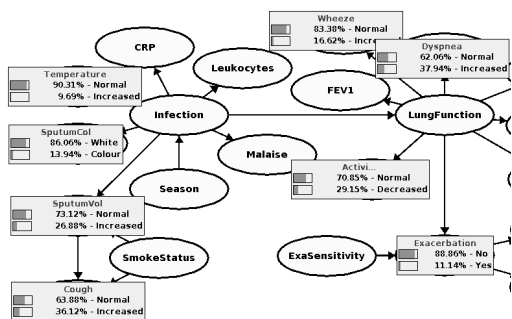


MBSD'S RESEARCH PROJECTS

We develop care-assistants for home-monitoring of two disorders:

- COPD – a chronic lung disease concerning mostly elderly people (AERIAL project)
- preeclampsia – a pregnancy-related syndrome (EMOMCARE project).

The assistants include Android-based applications for patients to fill in a questionnaire about symptoms, clinical data, and to communicate with oxygen sensors and blood pressure device via Bluetooth.



Bayesian network model for COPD

Research challenges and contributions of the projects:

We develop disease-specific **intelligent models based on AI techniques such as Bayesian networks** for interpretation of patient's data to make a prediction for the development (or lack) of the disease.

This can help patients to adequately react to worsening of symptoms and hopefully leads to less hospitalisations. Preliminary pilot studies with patients show the promising capabilities of smartphones as care-assistants.

POTENTIAL FOR BACHELOR & MASTER PROJECTS

- Data analysis and probabilistic modelling using various tools like Bayesian networks or logic
- Working on cutting-edge, application-oriented projects whose results can have vital clinical implications
- Possibilities for theoretical work on knowledge representation and reasoning
- Multi-disciplinary work offering unique opportunities for learning and building experiences in various fields such as developing intelligent models, smartphone applications, and performing clinical evaluation

