

"If we all did the things we are really capable of doing, we would literally astound ourselves."

Since 1995, ACTIMAGE distinguishes itself in IT consulting through innovation. By joining us, you will discover a company that is dynamic and motivated by excellence: we are organised in talented and creative teams.

Do you have a passion for innovative hightech? Do you like team work and results? We offer to our interns opportunities that match the level of their ambitions.

Your Role

Under the direction of a project manager, you will carry out research activities in the area of Software Engineering. You may be tasked with conducting literature surveys and establishing state-of-the-art; developing necessary experimental and simulation facilities where required; planning, executing, and analysing experiments and simulations; conducting joint and independent research activities; contributing to project deliverables, milestones, demonstrations, and meetings.

You will take part in our Ambient-Assisted Living project. One of the main goals of the project is to develop a smart recommendation system for diabetes patients.

A typical diabetes patient requires a daily injection of insulin to cope with his disease. The insulin dosage must however be adjusted to fit the physiology of the patient, his diet, his activities, as well as the updated level of glucose in his blood, among other parameters. Because most of these parameters take specific, and variable, values depending on the patient, the amount of insulin for a patient X is likely different from that of a patient Y. This makes challenging the design of a recommendation system that could help diabetes patients to compute insulin doses.

The challenge we are faced with is: how to build a smart health application that will automatically and seamlessly adapt itself to the physiology and habits of the user-patient? We divide this question into two main research challenges:

- First, how to bootstrap the functioning of the application? Initially, when a patient acquires the application, there is little accurate info on his habits. The system must then provide an optimum mechanism to configure the system in order to infer insulin dosage that is reasonable.
- Second, how to maintain the efficiency of the recommendation system over time? To be really efficient, a recommendation system must be tightly coupled with its target, the patient. Thus, after some weeks of use, the system must learn to provide recommendations that are tuned to fit the intrinsic specificities of the patient.

Our intuition is that these challenges can be addressed through the exploration of machine learning techniques. In particular, we will leverage clustering algorithms for mine data on patient habits and history of insulin doses to build categories for patient profiles, dietary restrictions, physical activities, etc. Multi-objective search scenarios will then allow to explore actions to recommend to patients.

The application of the work and the results of the work are ideally applied in a real-life project.

Your Profile

We expect from you:

- Industry experience in ICT and a proven interest in Software Engineering

STAGE Ingénieur (réf. StageRD-1410-LUX-CM-EN) Smart recommendation System for Diabetes Patients



- Being interested in addressing cross-disciplinary research
- Background knowledge in at least one of the following domains: data mining, machine Learning, software development, search-based software engineering; some additional knowledge/interest in software security and privacy will be appreciated
- Commitment, team working, a critical mind, and motivation are skills that are more than welcome.
- Fluent written and verbal communication skills in English are mandatory.

We Offer

- Workplace: Luxembourg-ville, Luxembourg;
- Contract: 6 Months Internship starting March 2015;
- Compensation: 1000 to 1500€/month according to profile

If you wish to seize the opportunity and respond to this challenge, don't wait. Applications, written in English should be submitted to Christophe MEGEL (CEO), cv@actimage.com (ref. StageRD-1410-LUX-CM-EN) and should include: Curriculum Vitae (including your contact address, work experience); Cover letter indicating your motivation; If possible, contact information for 3 referees.