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Careers

Job Description

Internship: Development/ Benchmark of signal processing algorithms for robust vital sign monitoring using camera

Your challenge

Are you the enthusiastic, talented intern we're looking for?

In this internship, methods/algorithms shall be developed, implemented and tested to infer robustly vital signs such as respiration and heart rate based on signals derived from a camera.

Your assignment

Respiration Rate (RR) is one of the most important vital signs but still difficult to measure in clinical settings. In Intensive Care Units (ICU), thorax impedance plethysmography is still the method of choice, whereas in sleep laboratories (polysomnography) the respiratory inductive plethysmography, invented in the late 70's, is usually applied. Both methods have some disadvantages: for thorax impedance–plethysmograhy, at least two ECG electrodes have to be placed on the thorax with cabling, and measurements are seriously affected by signal artifacts.

Philips Research has been developing monitoring systems, which are able to acquire respiration activity by monitoring chest movements with a camera without body contact. The methodology offers contactless measurements, where the basic feasibility in well-defined measurement scenarios has been shown. An app, Vital Signs Camera, for the iPad is available.

In this internship assignment, methods/algorithms shall be developed, implemented and tested to infer more robustly vital signs based on signals derived from video data. This includes research in different measurement setups, classification algorithms for different use case scenarios, data acquisition and benchmarking of different algorithm strategies as well as monitoring systems.

The work covers:

- Experiments to acquire data with an simulator and subjects
- Algorithm development, implementation and performance tests (Matlab)
- Benchmark of different algorithms on existing and new data

Your team

The internship will be hosted in the department "Patient Care Solutions" at Philips Research Eindhoven which investigates, develops and testes new concepts for the Philips Patient Monitoring division.

Our offer

Philips Research is a world-class industrial research organization dedicated to meaningful innovations. You'll work on application – oriented challenges for unobtrusive patient monitoring solution in the near future.

- It can be discussed to make this assignment suitable to do your thesis.

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- Duration: 6 months
- We prefer students able to start per January 2013

Internship conditions:

1. Students on work placement or final-year study assignment are paid a work placement or final-year study assignment allowance.
2. A student on a work placement or final-year study assignment is paid an allowance towards rented accommodation, depending on his/her situation. This will be determined setting up the Intern Contract.
3. A student on work placement or final-year study assignment who can prove that he/she is not entitled to a student card for public transport (OV-studentenkaart) is paid an allowance to cover the cost of travel between home and the place of work in accordance with the Conditions of Employment Guideline.
4. The student is entitled to paid leave on the basis of 1 day per month.
5. Opportunity to buy Philips products with tax benefit (Philips MyShop)

Your Profile

To be successful in this internship we are looking for you:

- Currently studying towards your **University Master in Science WO (Msc.)** in:

  o   Computer Sciences
  o   Engineering
  o   Mathematics
  o   Technology

- Are fluent in oral and written English
- Applicant needs to be creative with and have experience in Matlab programming

If you recognize yourself in this profile and would like to take this challenge, we invite you to apply latest 12-12-2012!

Notes

Required documents:

- Student registration form (proof of enrollment) at your current education
- Resume
- Cover Letter outlining your motivation/approach and informing your availability

Please note that in order to be applicable for an internship, it should be compulsory **(for students outside EU/EER)** by your education and **you need to be registered as a student during the entire internship period**, formal documentation of which may be requested at any time.

Please note that the content of our regular internship assignments are not suitable for MBA students with professional work experience.

For questions regarding the procedure of this Internship please contact:

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PHILIPS

Job Research
Primary Location Netherlands-North Brabant-Eindhoven
Organization Biomedical Systems-10011182
Schedule Full-time
TravelNo
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