Post-Master PDEng Trainee

Sensor Fusion for Environmental Monitoring

Are you ready for a two year training program while at the same time receiving a salary? Do you like to work in an international, multidisciplinary team of professional experts for the next two years? Would you like to apply your innovative, creative ideas in developing future healthcare products in the high tech medical industry? Then you should consider starting as a PDEng trainee at Eindhoven University of Technology, TU/e, www.tue.nl, in the Netherlands and gain a head start on your fellow Master students!

Job description Professional Doctorate in Engineering (PDEng)

During the traineeship you follow an individual program, consisting of courses, workshops, assessments and industrial projects, deepening the theoretical knowledge gained during your university studies. You will apply all knowledge gained in a large-scale in-company multidisciplinary design project. The project for this traineeship is conducted in collaboration between the Electronic Systems group (www.es.ele.tue.nl) in the Electrical Engineering department of TU/e and the environmental monitoring project team at imec-NL (www.imec-NL.nl). You build up a valuable network in the ICT business community and can count on professional supervision from both the university and imec. Your individual training scheme is customized to your personal and professional skills, as well as the demands of the industrial project.

Background on the topic

Air quality monitoring becomes more important in our society, both for indoor and outdoor applications. In this project, you will develop a wireless sensor system for air quality monitoring. The sensor system consists of multiple sensors for measuring different gasses (e.g. NOx, CO2, O3, ...) and particles (different particle sizes). Part of the sensors are developed in house at imec and the rest will be well chosen off the shelf components. The main work consists of the system design, including the routing strategy in the cloud of sensors towards the IPv6 exit points and the development of algorithms for calibration (initial and during lifetime) and temperature and humidity compensation. Also sensor fusion algorithms will be investigated to improve both sensitivity and selectivity of the total system for the different gasses. The design should be supported by system simulations that should be validated by working solutions in the field. The main emphasis is on data analysis and building efficient algorithms for the use of that data in environmental monitoring.

Requirements

The vacancy is open to MSc graduates from top universities. You should

- have an MSc degree in electrical or computer engineering, or computer science.
- have theoretical (and applied) knowledge in low-power wireless networks (e.g., IEEE 802.15.4) and sensor network protocols.
- have theoretical (and applied) knowledge of embedded systems and embedded programming.
- have solid skills in C (and C++) programming.
- have excellent communication skills in English (written and spoken).
- be a flexible team player, actively helping other team members, and see changes as an opportunity to learn and grow.
- be a quick learner, able to and interested in acquiring new skills and competences.
- show a hands-on attitude, taking responsibility for the process from specification to implementation and validation, including communication and alignment with peers.
Information
Further information about the content of the project can be obtained from: prof.dr.ir. Twan Basten or dr. Majid Nabi (a.a.basten@tue.nl, m.nabi@tue.nl).

Benefits
We offer a fulltime temporary appointment for the period of 2 years. Participants will receive a gross monthly salary of € 1.681. Moreover 8% bonus share (holiday supplement) and end of year allowance is provided annually. Assistance for finding accommodation can be given. The university offers an attractive package of fringe benefits such as excellent technical infrastructure, child care, savings schemes, and excellent sports facilities.

Application
If you are interested in this position, please submit your application (deadline: 15th of February 2015) through the application form. Your application should include

- a well-motivated application letter including your ideas about your professional future
- an extended curriculum vitae
- copies of your original B.Sc and M.Sc diplomas, certificates, lists of subjects and your results, as well as their certified (English) translations. Include rankings if available.
- copies of your Final B.Sc and M.Sc projects including English abstracts and (if applicable) published papers (PDF files). Submit at least one document written in English of which you are the main author.
- results of your IELTS test (or equivalent).

Please keep in mind; you can upload only 5 documents up to 2 MB each!