

## University of South-Eastern Norway

Approximately 65 million people worldwide suffer from Chronic Obstructive Pulmonary Disease (COPD). It has been estimated that it will be the third most common cause of death globally by 2020. About 30,000-40,000 new cases are diagnosed each year in Norway. Research has shown that biomarkers in saliva can predict COPD exacerbations 2-3 days before they occur. The goal is to make a system consisting of a sensor that detects biomarkers in saliva and an app that can analyse the results. Ideally, the system shall be intuitive enough for patients to use it themselves. USN is partner of a large-scale research project aimed to develop the saliva biosensor and smartphone APP. The research project attempts to reduce hospital admissions from COPD exacerbations by early detection and early medication, but also by giving patients more control over their own health, thereby reducing anxiety which is also involved in exacerbations.

<b>Faculty:</b>	Faculty of Technology, Natural Sciences and Maritime Sciences
<b>Title of position:</b>	Doctoral fellowship in Integrated bio-electronic sensors for saliva screening
<b>First-phase application deadline:</b>	31.01.2020
<b>Commencement of position:</b>	01.03.2020
<b>Main supervisor</b>	Professor Tao Dong

This Ph.D. position is associated with the Department of Microsystems and reports to the Head of Department. The place of employment is University of South-Eastern Norway, Campus Vestfold, at Bakkenteigen in Horten.

### Qualifications

Applicants must have a Norwegian masters or equivalent education abroad on bioelectronics, biomedical engineering or applied micro/nanotechnologies with experience on microfabrication, biosensing technology, electrochemical or optoelectronic sensors including bio-data processing and analysis.

Of preference, the applicant shall have research experience on body-fluid assays, as application of saliva, blood or urinalysis. Also, experience with Matlab, Arduino, or LabView is welcome. Applicants with experience in academic publications, either or both international journal articles and international conference articles, is a plus. The applicant must have finished the master's degree before the starting date of the position. Applications from candidates that have completed the Ph.D. degree will not be considered.

Minimum transcript requirements: average ECTS grade C in Bachelor study, average ECTS grade B in Master Study, master's thesis ECTS B.

Applicants who do not master a Scandinavian language must provide evidence of good English language skills, written and spoken.

Co-operation between staff members is an integrated part of the working atmosphere at the University of South-Eastern Norway. The candidate must be motivated and demonstrate a proven ability to work effectively within a team and in a collegiate manner to formulate and realise common objectives.

Personal suitability for the position will be emphasized.

### **Information about the position**

The position is funded by the Norwegian Ministry of Science and Education. The work of the Ph.D. candidate is affiliated to the Oslofjordfondet project KOLS, with Moss municipality as the project owner.

As biomarkers in saliva can be used to predict COPD exacerbations 2-3 days before they occur, the project aims to develop a bio-electronic sensor coupled with a signal processing system for precise analysis of salivary biomarkers that can be used to predict COPD exacerbations. The research work of the candidate will assist municipal health services in maintaining COPD diagnosed patients in stable phase. The sensor may involve electro/biochemical or optical methods. The project tasks will involve design, fabrication, prototype development, and data analysis.

The position will also involve activities of close communication with users. Ideally, the final system will be a point-of-care system that is sufficiently user-friendly so that patients can operate it on their own. User-involvement, user-friendliness and portability are important aspects of the design and prototype development.

The appointment is for a term of 3 years.

For further information concerning the position please contact:

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### **We offer**

- A professionally stimulating working environment.
- Good opportunities to develop your career and your academic skills
- A good social environment
- Attractive welfare benefits in the State Pension Plan
- Opportunity for physical activities within working hours

### **Salary**

Ph.D. position: NOK 480 000/ EUR 48578.33 a year, or over depending on seniority. A statutory contribution will be made from the employee's salary to the state pension plan.

### **Additional information**

The Academic Appointments Board is responsible for appointments to academic positions at University of South-Eastern Norway. An expert assessment of applicants will be carried out. Short-listed candidates will be called in for interviews, and final decision will be taken afterwards.

The successful applicant must comply with the laws, regulations and agreements that apply to the position.

According to the Norwegian Freedom of Information act § 25 2 paragraph, information about the applicant may be included in the public applicant list, even though the applicant has requested non-disclosure. The applicant will be informed if his/her request has been declined.

### **How to apply**

The application must include the following documents:

1. Transcripts with grades in both Bachelor/Master studies
2. Academic CV with List of scientific publications if any
3. Summary of master' thesis
4. Reference letters (optional)

Please note that courses transcripts must be translated into English.