Short-term fellowship in development of a meteorological UAS (Unmanned Aerial System)-Marie Skłodowska-Curie

Short-term fellowship

There is a vacancy for a short-term fellowship in meteorological instrument development, with focus on air-borne, multirotor-based turbulence measurements with sonic anemometers, at the Geophysical Institute (GFI) at the University of Bergen, Norway. The position is for a fixed-term period of 18 months and funded by the H2020 / Marie Skłodowska-Curie Action Train2Wind (agreement number 861291).

Are you eager to make an impact in offshore wind research that accelerates the green energy transition?

Are you enthusiastic about the leading renewable energy in the world? If you are interested in understanding the atmospheric flow around large offshore wind farms and motivated by discovering the underlying mechanisms that drive their power production, this PhD project can be for you. Join us in Train2Wind as a prestigious Marie Skłodowska-Curie Early Stage Researcher. Train2Wind is a PhD and researcher training school analysing entrainment in offshore wind farms with computer models and experiments.

By its very nature, a wind turbine extracts energy from the wind, which for a single wind turbine is replenished from the wind field on the sides and above due to the ambient turbulence. However, offshore, the turbulence is lower, and wind farms are typically larger than onshore, therefore the wind can only be replenished from above in a process called entrainment. With a network of 12 PhDs and 8 short-term fellows, Train2Wind will investigate the entrainment process using advanced high-resolution computer and wind tunnel modelling together with measurements of the wind field above, inside and downstream of large wind farms, using lidars, radars and Unmanned Aerial Systems (UAS).

About the project/work tasks:

The marine atmospheric boundary layer is up to date rather poorly understood, in particular in the altitudes relevant for the operation of state of the art and future wind turbines (0-300 m). This leads to a large uncertainty related to the appropriate description of the turbulence characteristics to be used as design basis for offshore wind installations, and in the understanding of the structure and dynamic of wind turbine wakes. One of the main reasons for that is the lack of corresponding measurements. During the last years, UAS have emerged as potentially a main tool matured for this type of observations. The main objective of this PhD is to participate in the development and test of a multi-rotor based measurement system carrying a commercial sonic anemometer to allow for the flexible investigation of turbulence characteristics, both in the inflow and in the wake affected interior of a wind farm. The tasks of the successful candidate will include:

- The evaluation and selection of appropriate airframes, autopilots, and data acquisition systems as carrier platform for a commercially available sonic anemometer
- The design and setup of the airframe and the autopilot system and the scientific payload integration, including required software architecture and programming
- Laboratory and field testing of the system
- The participation in scientific flight missions during dedicated measurement campaigns

Qualifications and personal qualities:

- Applicants must hold a relevant master's degree or the equivalent (or must at least have submitted his/her master's thesis for assessment prior to the application deadline) in, preferably, aerospace or drone engineering. Candidates with master qualification with other engineering background, or meteorology, oceanography, mathematics, physics, informatics, or similar, can be considered if they can proof the project relevant skills. It is a condition of employment that the master's degree has been awarded.
- Applicants must be able to work independently and in a structured manner, and demonstrate good collaborative skills.
- Applicants must be proficient in both written and oral English
- The following expertise and skills are required for the position and will be used as main criteria for the selection of the successful candidate:
  - Experience in the design and construction of UAS frames
  - Experience in integration and programming of autopilot systems, and the operation of UAS
  - Experience in scientific payload integration on UAS
- The following expertise and skills are advantegous for the position and will also be considered in the evaluation process:
  - Practical experience in planning and performing measurement campaigns
  - Experience in atmospheric measurement technique, in particular with sonic anemometers
  - Experience in CFD modelling for flow around structures
  - Basic background in boundary layer meteorology

Personal and relational qualities will be emphasized. Ambitions and potential will also count when evaluating the candidates.
Special requirements for the position

The applicant should not have lived and had his/her main activity in the same country as the beneficiary institute (Norway) for more than 12 months during the last 3 years on the date of appointment. This is a requirement for all Marie Curie sponsored exchange scholarships.

In addition, the successful candidate should satisfy at the time of the recruitment the following mandatory characteristics:

- having not more than 4 years of equivalent research experience (i.e. working as researcher after obtaining your master's degree);
- having not been awarded a title of PhD

We can offer:

- a good and professionally challenging working environment
- salary at pay grade 54 (Code 1108/pay range 25) in the state salary scale. This constitutes a gross annual salary of NOK 479 600,-. Further promotions are made according to length of service in the position.
- enrolment in the Norwegian Public Service Pension Fund
- good welfare benefits

Your application must include:

- a brief account of the motivation for applying for the position
- the names and contact information for two referees. One of these should be the main advisor for the master's thesis or equivalent thesis
- CV
- transcripts and diplomas showing completion of the bachelor's and master's degrees, or official confirmation that the master's thesis has been submitted
- relevant certificates/references
- approved documentation of proficiency in English (if required, cf. English language requirements for PhD admission)
- a list of any works of a scientific nature (publication list)
- any publications in your name

The application and appendices with certified translations into English or a Scandinavian language must be uploaded at Jobbnorge.

General information:

For further details about the position, please contact Prof. Joachim Reuder, Geophysical Institute, University of Bergen, joachim.reuder@uib.no, +47 47381397.

The state labour force shall reflect the diversity of Norwegian society to the greatest extent possible. Age and gender balance among employees is therefore a goal. It is also a goal to recruit people with immigrant backgrounds. People with immigrant backgrounds and people with disabilities are encouraged to apply for the position.

The University of Bergen applies the principle of public access to information when recruiting staff for academic positions. Information about applicants may be made public even if the applicant has asked not to be named on the list of persons who have applied. The applicant must be notified if the request to be omitted is not met.

For further information about the recruitment process, click here.

About The University of Bergen

The University of Bergen is a renowned educational and research institution, organised into seven faculties and approximately 54 institutes and academic centres. Campus is located in the centre of Bergen with university areas at Nygårdshøyden, Haukeland, Marineholmen, Møllendalsveien and Årstad.

There are seven departments and several centres at Faculty of Mathematics and Natural Sciences. Read more about the faculty and departments.

Jobbnorge-ID: 186368, Søknadsfrist: 31. mai 2020