

Validation of new loads rotor models for offshore wind turbines

1. General information

Internship: New loads rotor models validation internship for offshore wind turbines
6 months with expected starting date in April/May/June 2020
Paris or Rouen in Normandy
Approximately 1100€/month

Keywords : Renewable energy, aerodynamics, wake effects, validation, offshore wind farm, wind turbine, aeroelasticity, rotor unsteady aerodynamics

2. Description

Introduction and description of the subject

This internship takes place in the general context of the **offshore wind energy development in France**. The development of new loads models for offshore wind turbines placed inside wind farms requires a good understanding of the physics, aerodynamics, aeroelasticity, etc and of their impacts on extreme and fatigue loads. A whole range of models are available from the highly advanced Large Eddy Simulation codes to more engineering type of models (vortex panel free wake codes, Blade Element Momentum theory codes) to model rotor unsteady aerodynamics under unsteady turbulent flow fields.

The technology development load team based in Paris & Rouen has been involved in the development of various new models for both rotor loads and wakes. The team has a good access to the whole operational database of Siemens Gamesa wind turbines and is looking for the **support of 1 intern to help on the validation of the new loads rotor models based on our experimental data**.

Goals of the internship

Integrated in a team of 12 engineers and PhDs, you will be based in our ADWEN/SGRE R&D center in Paris or Rouen. Your missions will be to:

- Contribute to the validation of the rotor loads models developed inside SGRE Technology team.
- Analyse the experimental feedbacks and wind turbine live data and comparing them to the simulation results, contribute to the development of new modules to reach higher accuracies of the models
- Contribute to the optimization of the codes through new developments or to increase speed or numerical accuracy

Profile :

- Prepared diploma : Master of Science (last year) « Grande Ecole d'ingénieur »
- Field of competences : Programming, Numerical analysis, Fluid mechanics / Aerodynamics, Aeroelasticity would be a plus
- Very good level in Matlab required, Fortran and C would be a plus
- Ability to work in research teams with a good physical sense and a high curiosity for technical topics
- Languages: Fluent in English, Danish would be a plus

Contacts :

Paul DEGLAIRE (Technology Development manager France):
paul.deglair@siemensgamesa.com