Amir Rasekhi Nejad

Nationality:	Iranian
Year of birth:	1977
Master's degree:	Mechanical Engineering, Subsea Engineering
University:	University of Aberdeen, UK
Graduation year:	2010
Research group:	WP5, O&M and Monitoring
Supervisors:	Professors Torgeir Moan, Jørn Vatn
PhD start:	August 2012
Phone:	+47 735 95506
Email:	Amir.Nejad (at) ntnu.no
Home page:	http://www.ntnu.edu/employees/amir.nejad

Condition monitoring of mechanical drivetrain of a farm of wind turbines in service

Mechanical drive trains in wind turbines normally consist of simple, compound or coupled planetary gear systems with parallel trains. Even though similar configurations have been employed in other industries, gears in wind turbines are not like any other "conventional" power transmission system. The energy conversion mechanism in wind turbines has its own laws with its own specific problems.
The specific characteristics of mechanical drive train in the wind industry can be identified such as:

- Very high gear ratio, high operating torque
- Large torque variation
- Large in size & weight
- High reliability requirement, high availability expectation
- Difficult & expensive maintenance
- Difficult access

Using the drive train in this challenging industry with considerable differences with other industries requires more insight knowledge and modelling tools especially when the wind industry trend is toward bigger turbines in deep waters. The main objective of this research work is to explore methods improving reliability of wind turbine gearboxes and establish models for preventive actions and condition monitoring.