

The University of Queensland - IIT Delhi Academy of Research Joint PhD Project

Project title	Multi time scale wind speed forecasting
Project code	UQIDAR 00221
Project description	<p>Renewable energy sources are intermittent sources of power and are highly dependent on weather and climatic conditions. Variations in power generation poses multiple operating constraints like requiring primary and spinning reserves, complicated power production planning, and balancing power etc. It also has commercial implications in terms of financial planning, cash flow and downtime scheduling etc. Forecasting of weather patterns can help plan long term and short term operations of wind turbines. State-of-the-art forecasts can also have a significant economic impact.</p> <p>ReNew Power owns and operates over 50 wind farms with installed capacity close to 3GW (as of January 2019). A reliable forecast system for each of the farms would add to robustness to financial planning at ReNew.</p> <p>Objectives</p> <ul style="list-style-type: none"> • Build wind speed forecasting models based on weather and climatology data, numerical and physical models.
Project outcomes	<p>Deliverables</p> <ul style="list-style-type: none"> • Analytical models and tools to forecast probability density functions of wind speed for each of ReNew's wind farms for long term (decades-ahead), medium term (year-ahead), and short term (month-ahead).
Advisory team	<p>UQ Principal Supervisor Professor Tapan Saha Information Technology and Electrical Engineering saha@itee.uq.edu.au http://researchers.uq.edu.au/researcher/83</p> <p>IITD Principal Supervisor Professor B.K Panigrahi Electrical Engineering bkpanigrahi@ee.iitd.ac.in http://ee.iitd.ernet.in/people/bkpanigrahi.html</p> <p>Additional Supervisor(s) Jasvipul Chawla Dr Wen Hua</p>
Type of student	Applications are open to: i-students who meet eligibility criteria .
Discipline background of student	Ideally, this project requires students with a background in: Mathematical modelling, classification, forecasting, optimisation, programming
Ideal candidate	<p>Essential Capabilities: Expertise in classification and forecasting analytics and optimisation tools; data analytics.</p> <p>Desirable Capabilities: Programming skill and knowledge in machine learning tools.</p>

Application
process

Expected qualifications (Courses/Degrees etc.): Suitable degree in any branch of engineering, or in computer science or in Mathematics/Physics.

Apply online by the due date: <https://www.uqidar.org/students/how-to-apply/>