**PhD Scholarship Advertisement**

Fully Funded PhD Scholarship in “Efficient High-Fidelity Aeroelastic Analysis of Wind Turbines Through Reduced Order Modelling”

School of Engineering and Ryan Institute, Mechanical Engineering

Application(s) are invited from suitably qualified candidates for a 4-year full-time funded PhD scholarship starting in September 2024 affiliated to the School of Engineering and Ryan Institute, Mechanical Engineering at the University of Galway.

**University of Galway**

Located in the vibrant cultural city of Galway in the west of Ireland, the University of Galway has a distinguished reputation for teaching and [research excellence](https://www.universityofgalway.ie/our-research/)

For information on moving to Ireland please see [www.euraxess.ie](http://www.euraxess.ie)

**Detailed Project Description**

As wind turbines continue to evolve towards larger and more flexible configurations, the complexity of their aeroelastic behaviour becomes crucial. This necessitates the use of sophisticated high-fidelity modelling approaches to capture intricate physical details aiming for less conservative and more efficient designs. However, the computational expense of high-fidelity models hinder their applicability in real-life iterative design optimisation processes. To address this issue, reduced-order models offer a balanced solution between computational efficiency and accuracy.

This research aims to develop an efficient high-fidelity numerical tool using reduced order modelling techniques, able to capture the complicated nonlinear aeroelastic behaviour of wind turbine blades. This project will couple the geometrically exact beam model and CFD tools such as OpenFOAM to establish a high-fidelity aeroelastic analysis tool. Consequently, it will leverage deep learning techniques to develop efficient and accurate reduced-order models.

Funded by the College of Science and Engineering, this 4-year full-time structured PhD project offers an opportunity for the successful candidate to work under the supervision of Dr Pedram Masjedi. Through this project, the candidate will gain valuable expertise in aeroelasticity, Fluid-Structure-Interaction (FSI), and wind energy engineering.

**Living allowance (Stipend):** €22,000 per annum, for four years

**University fees**: The funding will cover university fees for four years.

**Start date**: September 2024

**Academic Entry Requirements:** First or Upper Second Class Honours degree and preferably Master’s degree in Aerospace/Aeronautical Engineering, Mechanical, or closely related engineering disciplines.

We are seeking a strong, self-motivated, and enthusiastic candidate with prior experience in computational modelling of Fluid-Structure-Interaction (FSI) problems and/or aeroelasticity. A solid understanding of computational methods in fluid and structural dynamics and proficiency in programming and manipulating these methods using languages such as Python, Julia, MATLAB, Fortran, or C/C++ are highly desirable.

Demonstrated ability to conduct independent research and contribute to scientific knowledge in relevant fields and a track record of publishing research findings in peer-reviewed journals would be advantageous. In addition, the ideal candidates should possess exceptional interpersonal skills, demonstrating a strong ability to collaborate effectively within a multidisciplinary research team.

**To Apply for the Scholarship:** Applications should be submitted via email to Dr Pedram Masjedi (Pedram.Masjedi@universityofgalway.ie) and must include:

* A current academic CV
* A motivation letter explaining why you are suited to this position
* Documentation demonstrating English language proficiency, degree, and transcripts

**Contact Name:** Dr Pedram Masjedi

**Contact Email:** Pedram.Masjedi@universityofgalway.ie

**Application Deadline:** Friday, 14th June 2024at 17:00 (Irish time 24hr format)

**Primary Supervisor name**: Dr Pedram Masjedi