Case Study

Mujahid Elobeid

EPSRC & NERC InDustrial CDT for Offshore Renewable Energy

www.idcore.ac.uk

About Mujahid

Mujahid has a background in Mechanical Engineering, which led to an MSc in thermo-fluids for the petrochemical industry. Following this, he worked as a research engineer at the Centre for Engineering Research, a research institute in Saudi Arabia, focusing on industry-academia projects involving multiphase flows in the oil and gas industry. He was attracted to IDCORE as part of a personal response to the climate crisis, seeking to apply his experience to something new and meaningful. He saw the interaction with industry offered by IDCORE as holding the potential to realise his dream of becoming a research engineer in the burgeoning renewable energy sector.

> ***The IDCORE programme has been an experience that has gone above and beyond my expectations. It is not a standard PhD programme! It has enabled me to access broader networking opportunities across the industry and I am confident that I will be able to secure a position when my time with IDCORE is complete.***

Mujahid's project

Mujahid is working with project partner EnerOcean, based in Spain. They are the developers of the world's first twin turbine floating offshore wind solution to be successfully tested on the open sea. His project involves analysing the combined impact of waves and currents on floating offshore wind turbines and their mooring systems. At present, the effect of these combined dynamics is understudied, so this is much needed research as these technologies start to get large market attention, motivated by their advantageous cost-efficiency as floating wind power systems.

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To facilitate this research, Mujahid has carried out simulations of various mooring configurations with different mooring line materials. He will utilise the FloWave facilities at Edinburgh to conduct experiments intended to validate these numerical simulations. Mujahid has submitted a paper on his initial findings, presenting these at an international conference in Hamburg, and is currently engaged in further in-depth numerical analysis.

Benefits of IDCORE

IDCORE offers unparalleled training in technical skills that have developed Mujahid's competency in offshore renewables. The first year of taught modules covering all aspects of the offshore industry directly influenced his desire to work in floating wind as opposed to other offshore renewables. He has also enjoyed the flexibility of having multiple supervisors, contributing expertise from the Universities of Strathclyde, Edinburgh and Exeter alongside the team at EnerOcean represented by Pedro Mayorga and Jan Erik Hanssen.

> I have been working with Mujahid's sponsor for ten years. They are an innovative company and Mujahid's work is helping them to understand better the hydrodynamics of mixed wave and current environments. This will help to improve their platform designs and identify the most appropriate deployment sites for their future commercial pipeline of projects.
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> *David Ingram, Director of IDCORE and Academic Supervisor, The University of Edinburgh*

> Mujahid's project is another example of how IDCORE is helping to demolish the divide between academia and industry. Having been an IDCORE student myself, it is a privilege to now be part of the supervision team. All of the projects I have been involved with have increased my awareness of the challenges facing the sector and the role research has in addressing them.
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> *Ajit Pilai, Academic Supervisor, University of Exeter*

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