



Case Study

Demetri Moros



EPSRC & NERC Industrial CDT
for Offshore Renewable Energy www.idcore.ac.uk

About Demetri

After graduating in 2018 from a degree in Mechanical and Aeronautical Engineering at the University of Cambridge, Demetri joined a strategy consultancy in London. However, this work didn't allow him to pursue his interest in sustainable energy and he started to look for ways into the renewables industry.

Like several others who have joined IDCORE and gone on to very successful careers in the sector, Demetri initially found it hard to access jobs in renewables. He had too much experience to join a graduate scheme but didn't have the specific experience that companies look for when recruiting people into direct entry roles.

IDCORE seemed like the perfect solution to this predicament. Not only was there relevance in the technical training provided, but also the industry-based research projects were clearly impactful for the sponsoring companies. The range of previous partners in these projects gave the centre credibility, increasing the employability of the participants.

I was attracted to taking on the supervision of an IDCORE project because of the excellent reputation the scheme has with colleagues. We have many academic relationships and engage with a wide range of PhD level research, but we particularly appreciate the flexibility of the IDCORE approach, its rich and comprehensive teaching, and the quality and versatility of the research engineers coming through the programme.

Nassif Berrabah – Lead Research Engineer, EDF

Demetri's Project

Demetri is now working within the renewables R&D team at EDF Energy working on tools to support the operations and maintenance (O&M) of offshore wind plant. Preventative maintenance on offshore wind turbines is often carried out on a conservative basis, so the question underpinning Demetri's project is, 'Can costs be reduced by improved scheduling of maintenance based on our knowledge of past failures and some form of reliability model?'

The project is split into two parts. In the first part he is investigating wind turbine data and using machine learning to develop models of the remaining useful life of components. This information is then being used alongside known failure times and other operational factors to optimise scheduling of O&M and further reduce costs.



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Benefits of IDCORE

The sense of community within IDCORE definitely enhances the experience of being a research engineer. It made the first year of training fun, and Demitri is looking forward to the additional courses that will bring his cohort together again, particularly the second part of the course delivered by SAMS at Oban. It has also been great to meet and get to know the other cohorts through events like the trip to the University of Edinburgh's Firbush Outdoor Centre.

As a whole, the IDCORE training helps create a holistic perspective on the knowledge needed to operate in the renewables sector, covering issues as diverse as environmental impact assessments, how the UK grid works, and the economics of offshore development. It even included a visit on a support vessel to the Seagreen construction site.

It feels like I am now making good progress, although, as you would expect, this hasn't been the case all the way through. I now have a clear plan in place for the project and, with the foundational work complete, I am starting to deliver some tangible results. I have identified the benefits that can be derived from more effective scheduling of O&M, and I am starting to present these to relevant stakeholders. Their responses to this work are helping me to understand their multiple perspectives and competing drivers. This is all useful data that will help me to develop an effective model and deliver my ultimate aim of creating an appropriate benchmark by the end of the project.

Demitri Moros

Industry Benefits

EDF have an established relationship with IDCORE which they value. The research engineers bring ideas from their courses and other students working on similar projects, and it is a very effective way of connecting to the academic community working in this area. They also see significant value in having a student working with them for three years on a project that they define, providing some continuity and stability in a sector where staff are very mobile.

When choosing a sponsor, Demitri saw that EDF could give him access to broader expertise and the opportunity to work on other projects alongside his own research. He has been able to see various stages of wind farm development and been involved in a study of ports around the Celtic Sea. He has also been able to make site visits to Teesside and Hinckley Point, extending his knowledge of the energy system. The knowledge he has gained from being part of IDCORE has been invaluable in building rapport with colleagues in EDF and increasing their level of engagement with his work. He has even participated in EDF's internal Technical Committees process, presenting his work to colleagues



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