



Case Study

Macauley Versey



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

Mac's project

Mac is working at the 'sharp end' of device development in the offshore renewable energy sector. He is sponsored by Mocean, where he is exploring a 'hybridisation' concept for their wave energy converter (WEC). This involves the installation of photo-voltaic (PV) panels on the WEC to reduce the need for diesel back-up in off-grid and micro-grid locations, the likely early market for Mocean's products.

Mac has been responsible for the design and installation of a six-panel PV array on the Mocean Blue X WEC that has completed an initial round of sea trials off Orkney. The WEC recently experienced a freak storm, which it withstood extremely well. Unfortunately, this storm removed one of the PV panels and destroyed Mac's data acquisition equipment. He is now re-designing the system for further testing during the next deployment.

Although this is a very practical project, it is not without a need for strong analytical capability. Alongside the practical testing and data collection, Mac is modelling the energy yield from the panels as they move with the WEC.

Why Mocean?

Mac picked Mocean because they are a small company with ambitious and interesting goals. He also liked their ethos and working environment. Wave energy is a very challenging area to be in, which was another part of the appeal for Mac, and Mocean are progressing well, with good support for their innovative developments. They also clearly value their relationship with IDCORE. Mac is the second IDCORE student they have sponsored. They describe their first student as their 'first employee'. Additionally, Mocean have just confirmed the hiring of a third IDCORE student, to begin work in summer 2022.



About Mac

Mac grew up in Suffolk, often holidaying in Scotland which attracted him to the University of Edinburgh where his first degree was a joint Masters in Mechanical and Electrical Engineering. He developed an interest in design and innovation and was president of a student society that was part of an international student competition to build a levitating magnet train. IDCORE felt like the perfect place for him to take these interests further, working at the forefront of engineering in the renewables sector.



The day I lost my data acquisition kit during a storm felt like a huge set-back for my project, but I have learnt that this is the reality of testing in the marine environment. Mocean have given me a lot of freedom and I am enjoying the opportunity to apply the knowledge I gained during my first year at IDCORE. I have been taken out of my comfort zone, but I can't think of a better place for that to happen. This is a high pressure environment, but the team at Mocean are really supportive and friendly.

Mac is a very able student and his project is progressing well despite the challenges he has faced on the way through. He is gaining first-hand knowledge of developing and constructing devices that can withstand the harsh conditions in the offshore environment. The outputs of his work are going to be valuable to Mocean, and the experience he is gaining will make him very employable at the end of his project.

Lars Johanning, Academic Supervisor, University of Exeter



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