The Centre for Ocean Energy Research (COER) in Maynooth University has some internship opportunities. These are an unpaid internships, although interns may avail of grants, or similar, (eg Erasmus), to support their internship expenses.

What we do offer, is the possibility to participate in a dynamic research environment, working on a topical research area, amongst highly motivated PhD students, postdocs, and other interns. Intern supervision is jointly managed by the COER Director, Prof. John Ringwood, and one or more of the lab's postdocs/PhD students. Interns are registered as students of Maynooth University, so have access to all University facilities as well as the COER lab facilities - desk space in the COER lab, computing and network facilities, etc.

Some more information on our activities, publications and people is available at: http://www.eeng.nuim.ie/coer/

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Internship Project 2: Interpolation-based strategies for the assisted computation of frequency-domain hydrodynamic coefficients in WEC systems

The objective of this internship is to develop a software tool for parametric hydrodynamic coefficients computation based on pre-saved structures. The user would select a geometry of certain characteristics (shape, size, draft, etc...) and, based on the pre-saved models, the program would give the user the hydrodynamic parameters of such geometry without needing to use a BEM (Boundary Element Method) solver. Thus, a user could quickly get hydrodynamic coefficients for a given structure with different characteristics, without having to know how to use BEM solvers and all the other required programs (3D modelling platforms, etc.). The platform could have a graphic and command line interfaces and, at the beginning, we could start with simple bodies, such as cylinders and spheres, which are easy to parametrize given their radius and draft. After that, it would be interesting to see if it's possible to parametrize geometrically more complex devices as combinations of simpler structures (such as, for example, Corpower device which could be defined as a combination of two cylinders and a truncated cone).

During a 4-months internship, the student would, first, develop different sets of hydrodynamic models using WAMIT or NEMOH for several geometrically simple devices. Then, different interpolation approaches to generate the final desired model, defined by the user of the software, would be assessed. Finally, the student would develop a software where the user could select the desired geometry and get the corresponding hydrodynamic coefficients. Finally, if more time is available, or else for a future extension of the project, more (and more sophisticated) geometries and interpolation methods would be added to the tool.