



Research Centre: Dublin City University Water Institute

Post title: Research Assistant

Post duration: Fixed Term up to 31st January 2020

DCU Water Institute

The DCU Water Institute is a large, multidisciplinary research unit based in state-of-the-art facilities situated on the campus of Dublin City University. Arising from success in recent proposals we are seeking applications for the following research position in DCU.

Operating under the direction of the Principal Investigators/Senior Researchers the Research Assistant will:

Duties and Responsibilities:

- Work on the development of a fluid structure simulation code which is to a couple Navier-Stokes (NS) solver with a Finite Element Analysis (FEA) solver. A new FEA solution will have to be developed and coded to deal with dynamic large non-elastic deformations with non-linear displacement boundary conditions and will have to achieve at least quadratic order accuracy of grid and be parallelized using the MPI framework. The FEA code should be able to read and use any grid generated by GMSH open source mesh generator for any complex geometries. The coupling will be to an existing flow solver but a new Immersed Boundary Method will have to be developed and will have to accommodate coupling between multiple mesh formats. All code development will be performed with OpenFOAM but will also involve other open source solutions. Also, due to the large difference between the fluid and the structure mesh sizes, a versatile mapping and interpolation method will have to be implemented to allow data transfer by Moving Least Square approximations.
- Maintain documentation on the software solution.
- Supervise visiting students who be responsible for the experimental characterization.

Qualifications and Experience:

The ideal Candidate must have a minimum of a primary degree in a relevant engineering discipline with a H1 grade classification. In addition, the candidate must

- Have experience in developing computational models for the study of both solid and fluid mechanical systems and their transient interactions in three dimensional space and must have experience of working with and customizing versatile mesh generation solutions.
- Have excellent written and verbal communication and interpersonal skills. Fluent command of English is required.
- Be highly motivated, a self-starter and able to work on his or her own initiative.
- Have permission to work in the Republic of Ireland

Preference will be given to candidates able to demonstrate experience over a broad range of projects including in code development with OpenFOAM.

Salary range: *€21,891 - €34,612

**Appointment will be commensurate with qualifications and experience according to the appropriate point of the salary scale, in line with current Government pay policy.*

Closing date: 19th October 2018

Informal enquiries to: Dr. Yan Delauré (yan.delaure@dcu.ie)

Please **do not** send applications to this email address, instead apply as described below:

Application Procedure

Application forms are available from the DCU Current Vacancies (open Competitions) website at <http://www.dcu.ie/vacancies/current.shtml> and also from the Human Resources Department, Dublin City University, Dublin 9. Tel: +353 (0) 1 7005149.

Please clearly state the role that you are applying for in your application and email subject line: Job Ref 1015 Research Assistant

Applications should be submitted by email to hr.applications@dcu.ie or by Fax: +353 (0)1 7005500 or by post to the Human Resources Department, Dublin City University, Dublin 9. Human Resources Department, Dublin City University, Dublin 9. Tel: +353 1 700 5149; Fax: +353 1 700 5500 Email: hr.applications@dcu.ie

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