MARIE Skłodowska-CURIE INNOVATIVE TRAINING NETWORK

OPEN CALL – PhD position

Host (recruiting) organisation
VOLKSWAGEN AG, Wolfsburg, Germany

Project Title: PGD for interactive aerodynamic optimization

Supervisory team

Primary academic institution Prof. Antonio Huerta Universitat Politecnica de Catalunya · BarcelonaTech	**Industrial institution** Dr.rer.nat. Carsten Othmer Volkswagen AG
Secondary academic institution Dr. Rubén Sevilla Swansea University	

Project description
Accurate and fast evaluation, in a daily industrial production environment, of drag around vehicles is still today an open computational problem. Nonetheless, being able to predict (and optimise) drag when the design variables are the vehicle geometry is also crucial and decisive because it has a major impact in the overall design time. This is known to be extremely expensive in production cycles due to the large amount of configurations tested and the high cost of each simulation involved in the shape optimization process

This project is aimed to explore the viability of the proper generalized decomposition (PGD) in a daily industrial production environment. A technique capable of introducing the geometric design variables as extra parameters in the numerical simulation will be developed. The method will be applied to the numerical solution of the incompressible Navier-Stokes equations using both an in-house code for demonstrators and OpenFoam industrial applications.

Benefits
- Doctorate degree from both UPC·BarcelonaTech and Swansea University
- Integration within the research group of an automobile industry leader
- 36 month full-time employment contract
- Additional mobility and family allowances
- Research supervision and training by recognised experts in computational mechanics from academia and industry
- Access to state-of-the-art research and computing facilities
- Training in transversal skills (e.g. communication skills, entrepreneurship)

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Prerequisites

- To have a strong undergraduate and MSc degree (or equivalent) in Engineering, Mathematics, Physics or a related field and a good level of English
- To have an enthusiastic attitude to conduct research, being hard-worker and critic
- To demonstrate knowledge of some programming languages such as Matlab and Fortran
- To have some experience with Finite Element analysis

Eligibility

Applicants shall, at the time of recruitment by the Wolkswagen AG, be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree. Full-Time Equivalent Research Experience is measured from the date when a researcher obtained the degree, which would formally entitle him/her to embark on a doctorate, irrespective of whether or not a doctorate is or was ever envisaged.

At the time of recruitment by the host organisation, researchers must not have resided or carried out their main activity (work, studies, etc.) in GERMANY for more than 12 months in the 3 years immediately prior to the reference date.

Duration of the project

The total duration of the project is 36 months.

Obligations of ESRs

- Completion of the Erasmus Mundus Joint PhD programme Simulation Engineering and Entrepreneurship Development (SEED)
- Be highly committed with quality research, training and management. The successful candidate is expected to become a future leader on the development and application of advanced computational methods for industry
- Take part of the mobility programme both in academia and industry
- Participate on the dissemination and outreach activities associated to the project
- Attend international conferences and present the research undertaken
- Contribute to the writing of articles in high impact international journals

Closing date

March 31, 2016

How to apply

www.lacan.upc.edu/AdMoRe

Questions

admore.itn@upc.edu