



## Job Offer for

# 5 PhD Candidates - CFD Development Engineers

### Reference: DEV18-10

In the framework of a Marie Skłodowska-Curie Innovative Training Networks H2020 project ASIMIA, between NUMECA and the School of Aeronautics - Universidad Politécnica of Madrid (ETSIAE-UPM) we have openings for 5 PhD students in training and research in innovative simulation methods.

Both teams have a strong background in Computational Fluid Dynamics, high order methods, multi-physics and High-Performance Computing.

NUMECA, a worldwide operating CFD software company (<http://www.numeca.com>), develops engineering flow simulation software widely used by engineers and designers in a large range of fluid engineering applications, from Aerospace, Power Generation, Energy to Race Cars and Ships. NUMECA is rapidly expanding and is continuously looking for young and senior talented coworkers. The company has its headquarters in Brussels (Belgium), subsidiaries in San Francisco (USA), Mons and Leuven (Belgium), Tokyo (Japan), Bangalore (India), Beijing (China) and Hong-Kong and is active worldwide through its network of agents and partners in Asia, Europe and America.

The Universidad Politécnica de Madrid (UPM) is the oldest and largest Spanish technical University, with more than 4.000 faculty members, around 48.000 undergraduate students and 6.000 postgraduates in 21 Schools of study. UPM Schools cover most of engineering disciplines, including Aeronautics. The School of Aeronautics ETSIAE-UPM is one the best schools of engineering in Spain and the oldest providing an aeronautical degree. ETSIAE-UPM was ranked 41st of the world in Shanghai's ranking for aeronautical engineering in 2017. The Dept. of Applied Mathematics at ETSIAE-UPM (<http://matap.dmae.upm.es/numath/>) offers a young dynamic environment, where currently 12 PhD students and 20 academics perform research in fluids and numerical methods.

### **What will you do?**

The main objective is to improve the predictive capabilities of current aerodynamic based High Order Methods (HOM) for Computational Fluid Dynamics (CFD).

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**n.v. NUMERICAL MECHANICS APPLICATIONS INTERNATIONAL s.a.**

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Description of the 5 PhD positions:

1. Curved mesh generation for HOM: high-fidelity surface representation and mesh adaptation strategies based on selective h-p strategies
2. Efficient solutions for HOM solvers, including multigrid technologies on modern hardware architectures
3. Advanced turbulence modelling for HOM-CFD for RANS, URANS and hybrid RANS-LES methodologies for complex aerodynamic flows
4. Development of HOM methodologies for fluid-thermal multiphysics applications
5. Development of HOM methodologies for fluid-structure multiphysics interactions

The PhD candidates will be required to spend half of the time in Brussels in the HOM development team and the other half in Madrid, at the School of Aeronautics - Universidad Politécnica of Madrid (ETSIAE-UPM), in the Applied Mathematics department.

### **Who and what are we looking for from you?**

Mandatory technical skills and experience:

- Degree in engineering, aeronautics, applied mathematics or physics, or equivalent expertise: MEng or MSc grade and less than 4 years of full time research experience (entitled to enter in a PhD programme)
- Excellent computational skills and interest in CFD programming (e.g. C++, Fortran) and fluid modelling are expected
- Familiarity with finite elements and turbulence modelling is not necessary but would be an asset

Language skills:

- Fluent English language is a prerequisite for the role.

You should be highly motivated and dynamic, have good communication and analytical skills, be a stress-resistant problem solver, and be a team player able to meet the highest quality standards.

### **What do we offer?**

All positions include a very competitive 3 year scholarship based on European project standards. (1.5 years under a contract in Belgium and 1.5 years in Spain under a contract with School of Aeronautics - Universidad Politecnica of Madrid (ETSIAE-UPM)). We also offer to work in a stimulating, young and multicultural environment, and to be part of a dynamic and growing company at Numeca and research team at ETSIAE.

### **How to apply?**

Please send cover letter and resume plus relevant technical papers, reports, references, etc. to [jobs@numeca.be](mailto:jobs@numeca.be) and to [esteban.ferrer@upm.es](mailto:esteban.ferrer@upm.es)

**Indicate clearly the reference job number: DEV18-10 and your preferred job position (1 to 5)**

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