University of A Coruña (UDC) has a vacancy in the Modelling and Numerical Methods in Engineering and Applied Sciences (M2NICA) research group for a talented

PhD student (3 years)

on the subject of new efficient methods and computation for ALM and valuation in life insurance/finance.

Job description
The research will be carried out in the context of the H2020 EU Marie Curie Initial Training Network project named “WAKEUPCALL”, which will provide a unique opportunity, for 6 researchers in early stages of their careers, to study cutting-edge research topics in the field of computational finance and risk management, under the prestigious scheme of the Marie Curie European Industrial Doctorates (EID).
The aim of the WAKEUPCALL project is to deeper understand issues in financial risk management, and in the mathematical theory of pricing financial derivatives (and the related products). The PhD candidate will join the WAKEUPCALL community, and take part in the WAKEUPCALL events in Europe.

In an EID project a close cooperation with industry is mandatory, therefore a stay of 18 months with the industrial partner is expected and prescribed. For the current vacancy, the industrial partner is Analistas Financieros Internacionales (AFI), http://www.afi.es/WebAfiEnglish/comun/default.asp, headed in Madrid, Spain. AFI is a consultancy company specialized in financial advice, analysis and strategic consulting, consultancy for financial institutions, Corporate Finance, Quantitative finance, Technology Training and publications. In its expansion process, AFI has been working on international projects, particularly in Latam and Maghreb, for more than a decade now. AFI not only provides services to clients belonging to the financial sector, but also to clients covering different economic sectors both in Spain and in the rest of the world, such as banks, insurance companies, investment services companies, institutional investors and private wealth, public authorities, non-financial companies and multilateral agencies. It is expected that the PhD student will work closely together with the industrial partner, AFI, at any stage of her/his PhD, and not only during the compulsory stay at the AFI offices.

The research group "M2NICA"(http://dm.udc.es/m2nica/en) at University of A Coruña will host the PhD candidate. The group is expert on mathematical modeling and numerical solution of problems arising in engineering and different applied sciences, also developing computer toolboxes for the numerical simulation of process and devices. The treatment of real problems arising in insurance and finance is one of the main research and transfer lines.

The PhD student, mainly supervised by prof. Carlos Vázquez, will work on the use of asset liability management (ALM) for the valuation of large portfolios of insurance companies which involves high computational costs and requires sophisticated stochastic modeling and appropriate calibration. Mainly focusing on life insurance portfolios, the innovative aspects will improve the long term modeling and portfolio optimization, reinsurance and managing strategies. The risk analysis with respect to optimal portfolios represents an important original feature. The efficient implementation of numerical algorithms in GPUs will provide a highly competitive software-hardware toolbox to be transferred and exploited by the insurance sector. Results are to be published in international journals and presented at major conferences and they must lead to a PhD thesis within 3 years.

At the end of the first year, the PhD student will be formally evaluated, to assess her/his ability of obtaining the PhD. The PhD title will be granted by University of A Coruña, upon a positive defense of the PhD thesis.

Requirements
Potential candidates have a master degree in applied or industrial mathematics, quantitative finance, or computational sciences (with specialization in computational finance). They have a strong interest in financial mathematics and they are willing to further increase their knowledge of finance, and software development/engineering.

They have to be — at the date of recruitment — an ‘early stage researcher’, i.e. starting his/her research career and not have a doctoral degree.

Preferred qualifications for candidates include excellent grades, research talent (as proven by the master thesis), affinity with the financial world, programming and personal ambition.
Candidates are expected to have and prove an excellent command of English, together with good academic writing and presentation skills.

According to the regulations for mobility within the Marie Skłodowska Curie programme, at the time of recruitment by the host organisation, researchers must not have resided or carried out their main

activity (work, studies, etc) in the country of their host organisation for more than 12 months in the 3 years immediately prior to the reference date.

Terms and conditions PhD Student

The terms of employment are in accordance with the ones of University of A Coruña. The PhD student will be employed with full social security coverage and s/he will have all benefits provided for in the Marie Curie ITN fellowships regulations, including a highly competitive remuneration, mobility allowances and family allowances.

As an Early Stage Researcher the applicant will register for a PhD at the Ph.D. Program "Mathematical Methods and Numerical Simulation in Engineering and Applied Sciences" at the Faculty of Informatics in the University of A Coruña.

University of A Coruña offers attractive working conditions, including flexible scheduling and help with housing for expat employees.

Application

Applications can be sent before 15 April 2015 to carlosv@udc.es Applications should include a detailed CV, a motivation letter asking for the position, a copy of passport or ID card, a list of your MSc courses and grades, a copy of the master thesis (if already presented), a list of publications. For residents outside the EER-area, a TOEFL English language test may be required.

Envisaged Job Starting Date is October, 2015.

For more information about the vacancy, please contact Prof. Carlos Vázquez Cendón, email carlosv@udc.es.

University of A Coruña, Department of Mathematics and Research Group

The University of A Coruña (UDC) was founded in 1989 and is located at the northwest seaside of Galicia, with two main campus in A Coruña and Ferrol. The UDC is a public institution whose primary objective is the generation, management and dissemination of culture and scientific, technological and professional knowledge through the development of research and teaching.

The UDC conceives his essential purpose as a quality public service aimed at achieving greater levels of welfare for the group of the society through the pursuit of social, scientific and technological advances in a framework of ethical values. Part of its mission is the formation of an open, critical, democracy and solidarity citizenship, capable of analyzing reality, diagnose problems, formulate and implement solutions based in knowledge and oriented to the common good. UDC promotes its full integration into the European Higher Education and the projection in Latin America.

The Ph.D. student will be integrated in the "Mathematical and Numerical Modeling in Engineering and Applied Sciences (M2NICA)" research group. M2NICA belongs to the Mathematics Department, which groups areas of applied mathematics and statistics and operational research, containing around 40 scientists. The M2NICA research group contains 8 permanent members, 2 temporary ones and 6 Ph.D. students being currently advised. Research lines are framed in the modeling, mathematical analysis, numerical solution and implementation (in HPC if required) of algorithms to solve real problems arising in engineering and applied sciences, some of them under contracts with companies. Quantitative finance is one of the main topics, with several thesis supervised and collaborations with different financial institutions.

Research group

For more information, please check the M2NICA research group web page http://dm.udc.es/m2nica/en.