

PhD Position in Biomedical Engineering, Data Analysis and Modélisation in cancer research

University of Deusto
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The University of Deusto (UDEUSTO) opens a call to recruit 1 Marie Skłodowska-Curie researcher for three years within the CATCH Marie Skłodowska-Curie Innovative Training Network, supported by the European Commission. Following high quality European Commission's requirements, the candidate will be selected via an open, transparent, merit-based, impartial, equitable and internationally advertised procedure, in order to avoid any kind of inequality or discrimination, guarantying a fair selection process.

About the job position

Applications are sought from candidates interested in pursuing a PhD in Engineering Program in the domain of Biomedical Engineering, Data Analysis and Modelling. The programme of research in which the PhD candidate will engage will form part of the CATCH ITN programme which is a European Industrial Doctorate (EID), a consortium that sets up a joint research and training programme in ICT tools, data mining, machine and deep learning, statistical analysis and modelling for researchers at doctoral level with particular emphasis on training in the non-academic sector. The participating researcher must be enrolled in a doctoral programme and spend at least 50% of their time in the non-academic sector. The recruited researcher will be based in and registered for the engineering doctoral programme within the Engineering Faculty of the University of Deusto, and during the 2nd year will be seconded for 18 months (M11-28) in Beacon Hospital Sandyford Limited (Dublin, Ireland). The researcher will be jointly supervised by supervisors in the academic and non-academic sector.

UDEUSTO has a long and well established tradition of teaching and research. Founded in 1886, and since 2009 recognised as an International Excellence Campus, the University is a hub for 39 research teams belonging to six faculties – Law, Theology, Engineering, Business, Psychology and Education, Social and Human Sciences. CATCH ESRs will be hosted in the University of Deusto's Engineering Faculty eLife Lab and Business School of Health (DBS-Health). Both, eVIDA Lab and DBS Health were established as a unit of executive education, research and social projection of health activities, revitalizing these reforms in the field of health technology and policy, in the definition and



monitoring of operational solutions and evidence of results. The research team where the Ph.D. candidate will be working with is an experienced, dynamic and diverse team of telecommunications, electronics and software engineers, business graduates, physicists, mathematicians and psychologists. Founded in 2002, the group is committed to research on and development of ICT-based tools, systems and interventions for psychological, social and physical health. Over the last decade, eVIDA and DBS Health have established close working relationships with key local stakeholders including hospitals, charities, other research groups and ICT companies. eVIDA Lab conduct applied research in two main areas: ICT for Well-Being and ICT for Health. In the field of ICTs for Well-Being, they are focused on the research, design, develop and test tools and systems which enable disabled people and the elderly to live more independent lives. In ICT for Health the research areas are linked to diagnostic aid, treatment and monitoring signal monitoring, more specifically to medical image processing, magnetic resonance, pathological voice processing and electroencephalogram.

For further details, please see the following links:

- [www.deusto.es: http://www.deusto.es](http://www.deusto.es)
- [evida.deusto.es: http://evida.deusto.es](http://evida.deusto.es)
- [DBS-Health: http://dbs.deusto.es](http://dbs.deusto.es)

Besides, the successful ESR candidate will gain experience in the clinical setting in Beacon Hospital, Dublin. Beacon Hospital provides world-class acute care services, including orthopaedic surgery, heart surgery, neurosurgery, general surgery, comprehensive cancer care (medical oncology and radiation oncology), and general and emergency medicine services. It has 153 acute care beds, eight operating theatres, two endoscopy suites and 14 dedicated critical care beds. The eight-bed medical-surgical intensive care unit (ICU) and six-bed coronary care unit (CCU) are designed to provide specialised patient care and recovery. Treatment facilities in Beacon include 8 operating theatres with dedicated rooms for Neurosurgery, Urology, Cardiac, General, Orthopaedic and Ophthalmic Surgery. It has 2 Endoscopy suites, a state of the art Oncology day treatment centre, and therapeutic radiography with LINAC- linear accelerator. Beacon hospital is accredited by Joint Commission International (JCI).

The ESR will have the opportunity to complete his/her academic training in biomedical engineering techniques for modeling and analyzing data with the study the patient experience through the entire cancer journey from diagnosis, through surgery, radiotherapy, chemotherapy and recovery. The Beacon Hospital's Multi-Disciplinary Oncology team is made up of Medical Oncologists, Radiation Oncologists, Specialised surgeons, Physiotherapists, Occupational Therapists, specialist nurses and radiation therapists"

About CATCH project and network

CATCH – Cancer: Activating Technology for Connected Health is funded by the European Commission through its Marie Skłodowska Curie programme and will offer 8 PhD positions in different institutions of the consortium subject to this funding.



Advances in cancer diagnosis and treatment have been ground-breaking, and we are now considering some cancers as chronic disease rather than fatal illness. This moves the point of focus in the fight against cancer from sustaining life towards maximizing functional capacity and quality of life (QOL). A critical element in this shift has been the rise of active rehabilitation in the management of cancer. In the past 10-15 years we have seen the emergence of significant evidence for the clinical effectiveness of active rehabilitation in cancer care, both in maximizing functional capacity and QOL, and preventing secondary recurrence. However, many barriers to implementation of active rehabilitation in cancer care exist due to its profound physical and psychological implications.

Technology advances such as gamification based on biofeedback, and neuromuscular electrical stimulation can help address some of these barriers but much must be done before we can effectively marry the technological capability to the unmet clinical need. In particular we need to understand specific challenges and patient journeys associated with cancer care and how we can help patients to leverage psychological tools to better engage in their own care. We then need to optimize technological tools to meet patients' rehabilitation needs, and finally, to understand how to bring resultant solutions to market where they can have maximal impact on quality of care. This can only be done by a multidisciplinary programme of research involving close collaboration between researchers in academic, clinical and industry settings.

CATCH is a deep collaboration across academic, business and clinical sectors. Students will benefit from intersectoral secondments, interdisciplinary communication skills, public engagement and outreach while working on a programme of interrelated core research projects addressing gaps in the knowledge and evidence base for technology enabled cancer rehabilitation mentioned above.

Within this project a network of 8 PhD students will be based in partner organisations across Europe including:

- University College Dublin, Ireland
- Universidad de la Iglesia de Deusto, Spain
- Syddansk Universitet, Denmark
- Salumedia Tecnologías S.L., Spain
- Beacon Hospital, Ireland
- Oncoavanze, Spain

Further details about the project will be provided under request.

About the eligibility criteria for CATCH:

- Researchers participating in an EID have to be 'Early Stage Researchers'. Early-Stage Researchers (ESRs) shall, at the time of recruitment by the host organisation, be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree.
- At the time of recruitment by the host organisation, researchers must not have resided or carried out their main activity (work, studies, etc.) in Spain of their host organisation for



more than 12 months in the 3 years immediately before the reference date. Compulsory national service and/or short stays such as holidays are not taken into account.

- Bachelor's Degree and Master's Degree in Electrical Engineering, Computer Science or Biomedical Engineering.
- Applicants must provide evidence of equivalent competence in English language by achieving the minimum standard in a recognised English language test, as outlined at the following link: <http://www.ucd.ie/registry/admissions/elr.html>
- Strong quantitative and qualitative (design thinking) research skills will be valued

About terms and conditions:

The recruited researcher will sign an employment contract and will be hosted in an attractive research environment characterised by excellence, internationality, interdisciplinary and cross-sectorality. In addition, he/she will benefit from a shared supervision and mentoring process formally inscribed in the Doctoral Agreement and the individualized Personal Career Development Plan.

The researcher will be paid a **gross salary** of €3.110 per month. The Living Allowance is a gross EU contribution to the salary costs of the researcher. Consequently, the **net salary will result from deducting all compulsory (employer/employee) social security contributions as well as direct taxes from the gross amounts**. The selected PhD student will also be entitled to a mobility allowance (€600 per month) and potentially also a family allowance (€500 per month) where appropriate.

The duration of the contract will be 3 years as a fully funded PhD.

Informal enquiries:

Informal enquiries about these positions may be made to catch-itn@deusto.es

The key persons in the candidate selection will be:

<p>Ms. Begoña García-Zapirain (Supervisor) PI of eVIDA Research Group (Ph.D. Ms.D.) Associate Professor Skype: mbgarciazapi</p>	<p>Mr. Roberto Nuño Solis (Co-supervisor) DBS Health Lecturer</p>
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Submission process:

The following documents must be provided for applications to be processed:

- ID card or passport for foreign students (scanned copy).
- Academic transcript of BA, BSc, Licenciatura, Engineering, Diploma, Technical Engineering degree studies or equivalent qualifications (scanned copy).



- Academic Transcript of an official Master's degree, Diploma in Advanced Studies or equivalent qualifications (scanned copy).
- Degree certificate granting access to the PhD programme, if Diplomas are issued abroad: it must provide proof that the diploma is valid to enter PhD studies in the issuing country (scanned copy).
- Curriculum Vitae (maximum of 5 pages) along with a covering letter outlining why you think you are suitable for the role and highlighting any relevant strengths or experience (maximum 2 pages). Include a scanned copy of the relevant supporting documents.
- Certificate of Foreign Language Competence: Certificates providing proof of foreign language level for assessment. In case of not having them, or not having submitted them, those candidates who pass the first selection stage may be called to interview.
- Two reference letters.
- Initial proposal of the research area and topic. (Maximum 2 pages).
- Proof of being a research grant holder, if applicable (scanned copy).

Applications:

- Procedure: Complete the online application form and attach the required documents.
- End date: September 9th, 2016, at 13h Brussels time.

Important notes:

- Candidates who meet the eligibility criteria as outlined above and are selected for interview will be notified by email. Please provide the email address you wish to be contacted on, when you submit.
- Interviews will be held via Skype and you will be notified of the date.
- The PhD position offered is subject to funding by the EU Horizon 2020 programme.
- The PhD position offered will have a pre-arranged secondment to Ireland as outlined in the project descriptions above. These secondments cannot be altered and the candidate will have to embark on the planned secondment when taking up the PhD position.

