CiTiUS

Centro Singular de Investigación
en **Tecnoloxías Intelixentes**

PHD STUDENTS

citius.usc.es


CiTUS

WELCOME

From my experience, choosing the right place to write a doctoral thesis involves three main questions. You have to be passionate about your topic, find an excellent scientific environment, and make sure that the place where you are going to live those years contributes to your life as much as the research activity does.

Definitively, if you are passionate about intelligent technologies, by choosing CiTIUS you will have made the right decision.

Senén Barro, *CiTIUS Scientific Director*

ABOUT CiTIUS

The **Singular Research Centre in Intelligent Technologies (CiTIUS)** is a research centre of excellence, the only one of its kind accredited by the *Xunta de Galicia* (Regional Government of Galicia). The centre belongs to the Singular Research Centres Network of the *University of Santiago de Compostela* (USC). CiTIUS' mission is to become a world-class research centre in Intelligent Technologies, capable of carrying out research of the utmost scientific relevance and socio-economic impact along with a high capacity for training and attracting talent.

Our centre is constantly growing, with more than 100 people in a multidisciplinary research team. Among them, we include 60 PhD researchers, a third of whom come from outside Spain. In addition, CiTIUS takes part in a network of scientific and technology collaborators distributed across all five continents and promotes international stays in research centres of excellence -or in industry- to obtain international recognition.

Our PhD programme provides the opportunity to start a research career with unique training in all professional facets in a multidisciplinary environment of international scientific excellence.

CiTIUS is highly committed to the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers and, subsequently, in addition to working continuously to improve its HR policies, it actively participates in meeting the objectives of the HRS4R seal, awarded to the USC in 2017.

“10 PhD thesis per year”

“More than 60 PhD researchers”

OUR RESEARCH: **CITIUS' SCIENTIFIC PROGRAMMES**

CiTIUS' scientific activity is structured around **8 Scientific Programmes.**

Currently, CiTIUS' scientific staff includes 31 senior researchers. They have been selected by its Scientific Advisory Board (SAB), composed of 7 scientists of renowned international prestige who are specialised in the centre's research areas. In addition, the SAB advises the centre on its research lines and guarantees the highest quality in the research carried out at CiTIUS.

Machine Learning

We design machine learning algorithms that are capable of learning from the data itself, allowing for the extraction of representative and useful information for the end user, thus contributing to the improvement of processes, systems, services, and products.

Advanced Computing

Our research aims to efficiently solve problems with a high computing character. High performance computing techniques can be used on a variety of platforms, such as multicore processors, manycore and GPUs, to extract maximum performance from the applications developed on them.

Autonomous Sensors

We design small and ultra-low power consumption devices with the ability to operate autonomously without maintenance or without direct connection to a power source. In addition, we work on the development of sensors with embedded intelligence that allow data to be processed directly in-situ, reducing the amount of information generated.

e-Health

Our research activity in this area is focused on improving prevention, diagnosis, treatment and patients monitoring processes, helping professionals in detection and decision-making achieving, as a result, a better quality of life for patients.

Approximate Processing

The large amount of daily generated data prevents its processing with conventional methodologies. We focus on analysing new processing techniques and efficient data querying offering approximate results in a very short time.

Natural Language Technologies

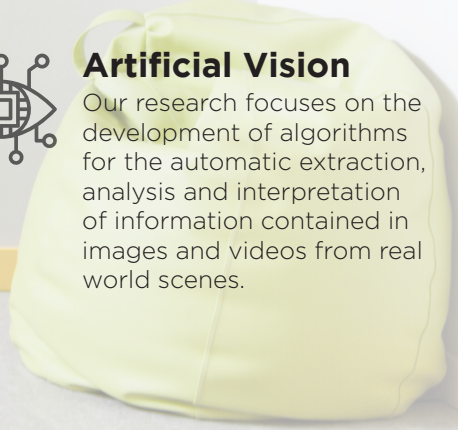
We work in an interdisciplinary area between Artificial Intelligence and Computational Linguistics with the aim of automatically understanding and interpreting texts to extract relevant information and to automatically generate texts that explain or summarise the information available in other sources, such as numerical, symbolic data or documents.

Personal Robots

Robots are becoming a part of everyday life. Our objective is to develop new methods allowing robots to learn from people and from its own experience. We aim better and more intuitive interaction systems with people, as well as further possibilities of navigation through greater autonomy and adaptability of the robot.

Artificial Vision

Our research focuses on the development of algorithms for the automatic extraction, analysis and interpretation of information contained in images and videos from real world scenes.



> **“The training activities cover a wide range of topics”**
>
> **Ilia Stepin,** *PhD researcher*

OUR **PHD PROGRAMME** IN A NUTSHELL

CiTIUS PhD Programme aims to provide comprehensive training, enabling young research staff to develop a scientific and professional career of the highest level.

The centre encourages its PhD researchers to participate in the best scientific workshops, to carry out international stays and to participate in outreach activities. This is how we get **our researchers to develop a unique profile that will allow them to successfully obtain a high-level professional career**.

Welcome Programme

New researchers receive support and advice from the technical staff of the support units before their incorporation in order to carry out the various administrative procedures and the search for accommodation, among others. Our Welcome Programme also includes a welcome to the centre on the first day and the assignment of an experienced PhD researcher to facilitate integration and support during first weeks.

Doctoral Meeting and CiTIUS conferences

In the framework of the Doctoral Meeting all the PhD researchers showcase to their colleagues the development of the research carried out in their thesis. These specific sessions are an opportunity for the development of communication and argumentation skills, as well as for scientific discussion.

CiTIUS also provides a series of conferences involving internationally renowned researchers, who are invited to discuss their research lines and interact with our research staff.

Training program

CiTIUS has its own training programme, which is designed by the Training and professional development commission for the training of researchers. PhD researchers actively participate in this Commission with the aim of finding out relevant training needs. The Programme organises a set of training activities especially aimed at complementing the training of PhD researchers in diverse topics such as scientific writing, protection of results, entrepreneurship and transfer of results.

Scientific outreach

As part of its mission to bring science closer to society and to promote new scientific vocations CiTIUS organises and takes part in numerous outreach activities throughout the year. The centre's PhD researchers participate in these initiatives contributing with demonstrators or specific talks to schoolchildren.

Among others, we organise schools and high schools visits as well as open days - as is the case with "Ciencia Singular" -, we participate in science fairs and in scientific dissemination programmes.

Social Life

PhD researchers organise several social/leisure and sports activities throughout the year. It is worth mentioning CiTIUS Day in July that includes outdoor sports activities and also video game competitions organised many times a year.

A DOCTORAL THESIS AT **CiTIUS**

What are the eligibility requirements?

You must have a Bachelor's and a Master's degree or be in the final months for its completion. It is essential to be able to accredit 300 ECTS on the date of incorporation, of which at least 60 must be Master's degree's, and have an excellent academic record.

As a multidisciplinary centre, we encourage candidates from different areas with a great interest in intelligent technologies to apply, such as engineering, physics, or mathematics. It is also important to have a good level of English.

How and when can I apply for a doctoral thesis at CiTIUS?

CiTIUS offers different ways to apply:

1. Reviewing the list of thesis topics offered on our website and submitting your application using the available form.
2. By submitting your application to one of the calls that the centre regularly offers in the news section of the website.
3. By sending an application directly to *citius.kmt@usc.es*

For any **additional information**, please contact the Knowledge Management and Transfer Unit at *citius.kmt@usc.es*

How does the selection process work?

The evaluation of applications is carried out in different phases, with a pre-selection phase based on the CV, an assessment done by the possible PhD thesis directors, and finally a personal interview. The evaluation criteria are academic and scientific excellence.

How long will it take me to complete my thesis?

PhD researchers at CiTIUS must complete their doctoral thesis within a period of 3 years, which can be extended to a maximum of 4 years. It is also possible to complete a doctoral thesis on a part-time basis within a period of 5 years, which can be extended to a maximum of 7 years.

WHAT **OUR PHD STUDENTS** SAY

"I joined CiTIUS to do my Master's thesis and later I continued as PhD researcher. The working environment is excellent, not only because there is a good relationship among the team, but also because when we get stuck in our work or in case we have any doubt, we help each other and share ideas to advance. Another very positive aspect is the tutoring, like when I was doing my Master's thesis and my tutors gave me the opportunity to propose new ideas and discuss the best option."

"The working environment is excellent"

Andrea Cascallar

PhD researcher in the area of fuzzy logic and natural language generation

"From the beginning, I had the impression that CiTIUS staff take future PhD researchers and their future work very seriously. I have received help and advice on every aspect in order to facilitate my incorporation and my move to Santiago. Currently I am very happy to work at CiTIUS. Since joining the scientific community, I have been aware of my big progress and I am very motivated to pursue my PhD thesis at CiTIUS as well as my scientific career after the doctorate."

Ilia Stepin

PhD researcher in the area of explainable artificial intelligence (XAI)

"My first task at CiTIUS involved my Master's thesis in Physics. I would like to highlight the Welcome Programme, which introduced me to the CiTIUS staff and provided me with advice and information on how some CiTIUS' support services work. Currently, as a PhD researcher, I think my experience is even better than when I was a Master's student, as we have a good atmosphere among the laboratory colleagues."

Celia Outes

PhD researcher in the area of semiconductor devices simulation

Álvaro Ordóñez

FPU PhD researcher in the area of hyperspectral imaging

"Indeed, there is a positive workplace environment both because of the mutual support feeling among colleagues, and because of the facilities provided by the centre. There is a friendly atmosphere and a team spirit among PhD researchers. Moreover, the center is always open to organise any training activity that we suggest. In my case the tutoring is ideal, my tutor provides me with the support and the follow-up necessary to carry out my research work."

WHAT **OUR ALUMNI** SAY

> CiTIUS is a centre which is **very clear on its aspiration to become an international reference in research** and which uses all available means so that its researchers do not miss the opportunities they need

"From my time at CiTIUS I remember a great workplace environment. At the centre I had the opportunity to start my research career with the best means I could ever have not only in Spain, but in any other centre in the world. From a professional perspective I highly recommend the centre to future PhD researchers, because at CiTIUS they will have access to all the means they may need to carry out the best possible research and, from a more personal perspective, because both the city of Santiago and the workplace environment provide with an unparalleled quality of life."

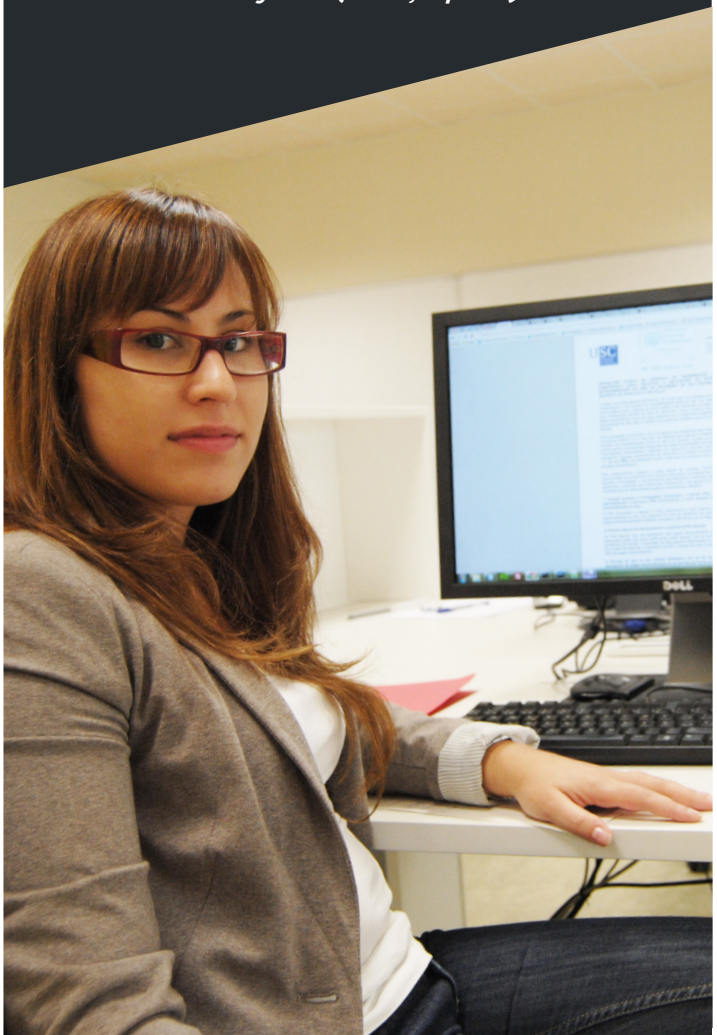
Tomás Teijeiro

Postdoc researcher École Polytechnique Fédérale de Lausanne (EPFL, Switzerland)

"I remember my predoctoral stage as a very demanding and challenging period, but with a great work environment including full support from my colleagues. It gave me professional maturity as well as analytical and problem-solving skills, which is very convenient for my day-to-day as I am leading a project in the area of data science in the company uDA".

Estefanía Otero

Senior Data Engineer at urbanData Analytics (uDA, Spain)



"When I first started everything looked very new and you could feel a lot of enthusiasm for doing different things. From that time, I would highlight the experience of working in a research field at the frontiers of knowledge and meeting wonderful people who supported me. I highly recommend CiTIUS to future PhD researchers because beyond the building or the centre itself, people is what make CiTIUS great."

Julián Lamas

Product owner at 1000shapes GmbH (Germany)

LIVING IN **SANTIAGO**

Santiago de Compostela has an estimated population of **100,000 inhabitants** including a metropolitan area of the same size.

With a historic centre that **has been recognised as a World Heritage Site**, Santiago is the most cosmopolitan city in Galicia. For centuries, it has welcomed pilgrims from all over the world on the Way of St. James. Only in 2019, more than 340,000 pilgrims from over 190 countries arrived in the city. Santiago also has an extensive university background. The city is home to more than 21,000 students, including more than 2,000 PhD students.

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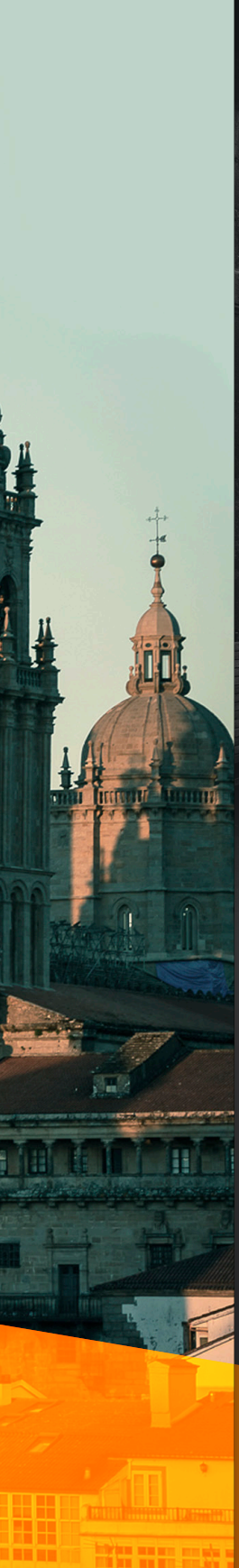
> The Campus Vida, where CiTIUS is located, is also **a top level research ecosystem.**



The Campus Vida, where CiTIUS is located, is also a top level research ecosystem, **with 4 Singular Research Centres specialised in different areas**: CiQUS in biological chemistry and molecular materials, CiMUS in molecular medicine and chronic diseases, IGFAE in high energy physics and CiTIUS in intelligent technologies.

This scientific environment is completed by two other facilities located in the campus including sound collaboration with CiTIUS: CESGA, Galicia's Supercomputing Centre, and CHUS, the University Hospital Complex of Santiago de Compostela.

CiTIUS

USC UNIVERSIDADE DE SANTIAGO DE COMPOSTELA

CAMPUS VIDA CAMPUS DE EXCELENCIA INTERNACIONAL

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