

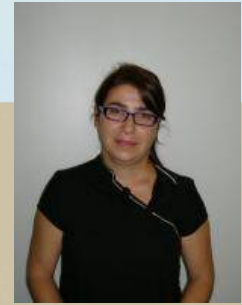
## ESR 2

**Name:** M<sup>a</sup> Magdalena Ramos Calles

**Your credentials:** Geodesic and Cartographic Engineer

**Start day:** 14/07/2014      **End day:** 13/07/2016

**Involved in WP:** WP2, WP7      **Hosting Institution:** FBK



## My Research Training Activity in ITN-DCH

### **A. Summary of the Career Development Plan:**

Nowadays there is a huge variety of CH documentation methods available, the most known as photogrammetry and laser scanning, whereas a wider classification can be followed considering image-based and range-based methods and several type of data can be found. However, all the datasets incoming from different sources are often considered independently, no relation between several raw data types is established.

Taking it into account, the long term objective is to develop a CH digitalization methodology based on raw data fusion. The research activity is focused on study and algorithm development oriented to a new methodology for data fusion and registration.

To achieve this objective, short term objectives are also planned, such as state of the art study regarding data fusion, collaboration with existing fusion projects, mainly at the host institution but also into the ITN network, and training in specific areas.

### **B. Core Research Training Activity:**

*Firstly, about my researching activity:*

From the beginning, I am focused in gaining deep knowledge about all the digitalization methods, its pros and cons, the characteristics of raw data, and the algorithms used to derive useful information from each. Due to the wide range of data that can be fused, it's not an easy task to define a concrete research field, and a deep state of the art analysis has to be done before.

Lately, I have had also the opportunity to collaborate with a colleague of department on a data fusion project, concretely calibration and registration of images coming from different bands of the spectrum, which I consider is of great importance for cultural heritage elements.

*On one hand, regarding the ITN-DCH project activities:*

I have actively participated in the 1st Summerschool of the project, hosted by the University of Stuttgart in October 2014. During the event I met the other ESRs and ERs and understood better the various partners of the project, establishing useful connections with several of them. During the summer school there were several activities on a hands-on training in photogrammetry.

Afterward, in the beginning of November 2014, I visited the site of the first case study, the church of Asinou in Cyprus. After the visit I attended the Euromed 2014 conference, where I had the chance to meet and discuss with the project advisors of the ITN-DCH project.

In March 2015 I attended the 6th 3D-ARCH workshop, where a poster presentation was given.

At the same month, I participated in the 2nd project workshop hosted by 7Reasons in Carnuntum, close to Vienna (Austria). The place is the second case study of the project and during the event I could attend oral presentations as well as, working jointly with other fellows, run some digitization procedures on the artifacts of the heritage site.

Also, together with my ITN-DCH colleagues, I have also been contributing in redacting several project deliverables: D 1.1 and D 2.1 up to the moment, and D 2.2 nowadays.

*On the other hand:*

Regarding the training activity at my host institution, all the necessary equipment has been provided (hardware and software), as well as meetings with my supervisor in order him to review/advise my research activity; and the assistance to the internal lectures where my colleagues of department are presenting their work. Also I had the opportunity to present to them the ITN-DCH project and my research topic.

Additional training activities in which I participate at my host institution or country include: safety course, English public-speaking classes, and Italian and computer vision classes respectively.



### C. Secondments:

The already done or planning secondments for this first year are the following:

1. NTUA: for two weeks (from 2 to 7 February 2015)

The main mission of this particular secondment, apart from having the opportunity to discuss with the local supervisor at her PhD institution, I got in touch with the current and past researching projects being developed by NTUA, thanks to several meetings with local researches, PhD students and NTUA professors. Also, I had the opportunity to discuss with other fellows not much related with my researching field, in order to identify the CH documentation requirements coming from material detection or architectural characterisation.

2. ArcTron3D: for two weeks (July 2015). Objective: Full CH digitalization pipeline.
3. Stuttgart University: for two weeks (September 2015). Objective: Strengthen computer vision and photogrammetry knowledge.

### D. Dissemination & Outreach:

During my secondment at NTUA, I was invited to give an open lecture at NTUA about “Fusion State-of-the-Art & Case studies”, where I was able to present my current research topic and the ITN-DCH project.

Next summer, I will also participate and collaborate with the next CIPA summer school organization, on “Cultural Heritage 3D Surveying and Modeling”, which is oriented to scholars, PhD students, researchers and specialists in the surveying and heritage fields to deepen their knowledge and expertise with reality-based 3D modeling techniques.

Moreover, in cooperation with other fellows, we have been involved in redacting the consortium newsletter as well as project diffusion management activities at the social media (facebook, twitter & linkedin ITN-DCH pages).

### E. Added Value to my Future Research Career:

Over all, for me, the ITN-DCH Project is given me the chance to get in touch with other researchers, people from academia, institutions and private companies. The mobility opportunity is useful to increase our knowledge about methods, tools, instruments and solutions nowadays at the European level, not only for CH digitalization, but also regarding present or future research topics.

My colleagues at the project, all of the ITN-DCH fellows belong to an interdisciplinary network, therefore is an excellent way to get a bit closer with some other methodologies and requirements.

The opportunity to work at a researching environment at my host institution is also worth to mention, as well as my supervisors’ advices.

Finally, other skills are gained like improving English language, ability to give oral talks and lectures, presentation designing and report writing.