ABSTRACT

Intelligence is, perhaps, the most precious gift given to human beings, the result of millions of years of evolution. Education, however, is what gives intelligence rigor, direction and purpose, moral sense and continuity. In vain do we invent wheels, if we do not know where we are going. And if we know, we can use the experience of others to choose the shortest path. Education is based on teachers, personal example and influence, transmitting of values and the awakening of curiosity. Curiosity is innate, but it depends on the school whether it is encouraged or suppressed.

After a long journey on school benches, after a rich experience in academia, I can say that the desire to learn and share what I have learned has become more intense over time, because the more we know, more questions arise, more excited our curiosity becomes. First of all, I would like to emphasize the importance of immersion in academia, together with colleagues and professors equally passionate about geodesy and topography, among friendly discussions and differences, as a fertile ground where the fruits of knowledge are not long in coming and where strong essences are truly valued. Starting from general to individual, to the specialization on certain topics and current issues, each step has its well defined role. In order to better understand the details, it is important to have an overview, and in order to have a more comprehensive overview, it is the details that make the difference. In order to be able to contribute to solving a problem, we must dedicate ourselves completely and we must focus only on it. This is actually tried through the bachelor's, master's and doctoral programs, the last step being the one that allows the concrete, palpable action that we can have on the daily reality, the one that allows us to change, literally, the world. Even if it may be difficult at first, the end results make everything worthwhile and, as with anything, it is important to find the right motivation. Motivation is the engine of any action and without it we can achieve nothing. Thus, whether it is the desire to know more, the desire to do something concrete in the world you live in or just the pure passion for the domain, it is important to establish this from the beginning. And then go on your way. I did it, and I feel more fulfilled as a professional in the field of land measurements and cadastre, but also as a human being.

The habilitation thesis comprises in the research activity undertaken by the candidate after defending the PhD Thesis entitled “Monitoring, modeling and analysis of landslides and reinforced-earth constructions using modern geodetic technologies”, having Prof.dr.eng. Marin Marin as scientific coordinator, at Politehnica University Timisoara. The public defending of the doctoral dissertation took place in 28 February 2014 at the Civil Engineering Faculty, the PhD title being confirmed by Order no. 165, dated 07.04.2014 issued by The Ministry of Education and Research.

The scientific and professional achievements together with the evolution and career development plan, presented during the present habilitation thesis, are structured in four sections, namely:

1. Overview of research conducted during doctoral stage;
2. Scientific, professional and academic achievements in post-doctoral period;
3. Evolution and development of professional, scientific and academic career plan;
4. References.

The first section reviews the research undertaken in the doctoral stage. The most documented section is represented by the second one, in which the most important achievements are presented, in close connection with the current development context of the domain in which the addressed topic in this habilitation thesis is applicable.

The 2nd section which, as stated above, includes both the research activity conducted so far and the achievements, being structured on certain thematic directions:

- the first part synthetizes the deliverables obtained throughout the professional activity, after defending the PhD. thesis, namely: published books and e-books, scientific articles, citations of the articles from the ISI, Scopus and Google Scholar databases, research projects both as manager and team member and other relevant scientific, didactic and professional achievements;
- the second part presents the personal achievements in the context of the current state of scientific research in the thematic field of geodesy, both internationally and nationally, highlighting, in an argumentative and documented way, the relevance and originality of personal contributions.

Given the fact that, in the geodesy field, the advance of technology has an alarming pace, I have always tried to be up-to-date with state-of-the-art and to develop my research in those particular directions, so that the topics covered during the activity professional are based on the evolution of technology, including case studies conducted with LiDAR (Light Detection and Ranging) - terrestrial laser scanning and UAS (Unmanned Aerial Systems) - drones.

It should be noted that the activity of the candidate in the field of geodetic engineering, in particular 3D modeling (11 years of research in this field), from the beginning, September 2010, until the defending of PhD Thesis, and for the postdoctoral period, comes under the scope of the research conducted by the department of Overland Communication Ways, Foundation and Cadastral Survey. Moreover, the scientific research was materialized in numerous grants and projects developed in

collaboration with the team from Terrestrial Measurements and Cadastre from Civil Engineering Faculty, Politehnica University Timisoara, but also with private companies from the western part of Romania in the geodetic sector and departments from EU universities.

The new subjects of research in the post-doctoral period can be synthetized in three distinguish themes, each of them related to the following aspects:

- LiDAR applications in the Geodetic Engineering domain;
- Reverse engineering with a view to creating 3D point clouds / mesh models for H-BIM in the cultural heritage domain;
- E-Learning in higher education system – particular case of Geodetic Engineering domain.