Irina Florea

Change the Present for a Better Future

Dear Readers,

For this issue, I invited Irina Florea to write this column on "Future Trends in I&M." Irina is a young Romanian engineer who received the Bachelor of Science in "Instrumentation and Measurement" and the Master of Science in "Instrumentation and Advanced Measurement Systems" from the Polytechnic University of Bucharest. She is now working at Renault where she is bringing all her competences in I&M to industry. So, who better than her can write something about "Future Trends in I&M"? Irina Florea is indeed a young, brilliant engineer. I am sure you will agree with me after reading her contribution.

All the best,

Simona

"Rise and Shine, My Dear!" After almost three years since my last published article, since my last research project and its activities reports, after three years of just everyday work in I&M applied to the automotive industry, someone very special to me has invited me to tell about how measurements are now part of my life.

Let me introduce myself. My name is Irina Florea, and I declare myself one of the old school students who is always keen to find out more about measurements, about uncertainties, curious to know and understand … let us say, the past, present and future. Talking about the future… for me, the future is always better. But this happens only if we know the present, avoiding the mistakes we have done in the past. I say old school student because I have chosen to experience measurements in a prestigious automotive company after my bachelor's degree while using the knowledge acquired during my university studies. I say curious student because, during my bachelor's training, I tried every time to work more than the other students, being very fond of mathematics and calculating uncertainties in the case of electrical systems.

I discovered the measurement field in my second year of study in the Electrical Engineering Department of University Politechnica of Bucharest. Wanting to find out more and more, I had the opportunity to participate in the IMU Summer School where the courses were more difficult than the ones in university, and many details which at the beginning seemed less important to me (especially "History of Metrology"), but in the end, everything fit just like a puzzle in my mind. Every detail made and makes the difference. After that course, I maintained my research area on metrology-uncertainties. As a research assistant, I had to determine the influence of the measurements' uncertainties on different electrical systems, according to the "Guide to the Expression of Uncertainty in Measurement," and I had to use MATLAB for research statistics.

In the last year of my master's degree studies, I was chosen to be part of a training program on, obviously, measurements for an automotive company. What kind of measurements? Noise and Vibration Harshness (NVH) Measurements. Here, I have discovered how beautiful things can happen in my career. Almost everything I have learned at IMU Summer School and at the University, I have been applying to my work. Here are some examples: measurement units, sensors, signal processing, data acquisition systems, post processing data, instrumentation and measurement (I&M), ways of presenting results, etc. In my job, I perform and analyze NVH measurements for engine brackets, intake noise, and modal analyses.

I was saying, "Every detail made and makes the difference." Difference is an opportunity for discovering better and better ways of doing things. We do not have to use the same methods, we keep the basics but we can change, and we can improve our measurement style of working by having a strong background and an open mind. Of course, quality must be always a priority; however, working in a successful company also means you need to save time for many other new projects. Saving time, you save money but you must do your job properly. Well, in my case, I have to make precise measurements using experience and knowledge. Every time I have to ask myself: "Why is this signal like that? What can I do to make it better? What is the source of the uncertainties? Have I used the best method or is there any other way to verify it?"

Working in the area of I&M means you have to adapt yourself to different environments. How is this possible or why should I do this? Well, let me confirm to you that I&M is everywhere. Everything around us can be measured. Persons with different backgrounds can join this area, the only secret is to be open-minded and willing to learn about I&M.

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My job is a challenge for me and for my colleagues. Being a normal young woman who works as a Measurement Engineer on vehicles engines is, let us say, quite different. I am very proud to be a part of this industry. This is not a woman's job typically, but it is interesting to challenge myself in finding solutions to every problem. Do differences bring quality? Of course! You, young lady engineer, you can do the same things but better, faster, more precisely, cleanly. Are there sacrifices? Instead of other pursuits, you need to develop a strong background in your field, you have to believe you can succeed, and most of all, be motivated. You need to have near you the proper person who believes in you, and you need faith. Have the faith that you can change the present for a better future!

Do not stop only at using; start creating something!

Irina Florea (irina.florea@renault.com) has been an Acoustic Engineer at Renault Technologie Roumanie since 2012. From 2010 to 2012, she pursued her Master of Science degree at the University Polithenica of Bucharest, studying electrical engineering, sensors and transducers, and successfully writing her dissertation in instrumentation and advanced measurement systems. She had previously earned her B.S. degree in 2010 at the same university in the Department of Electrical Engineering. Irina presented research on instrumentation and data acquisitions at the IEEE's 1st Annual International Measurement University, hosted by the Instrumentation & Measurement Society, in Sardagna, Trento, Italy in July 2008. Irina's affiliations include: MicroDERLab Research Group; Politehnica University of Bucharest (2008-2012); IEEE– Graduate Student Member; and Instrumentation and Measurement Society (2010-2012).