PhD candidate in the spotlight:

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Could you briefly introduce yourself and your research project (in laymen terms).

Originating from the Philippines, I have crossed waters and travelled ~10,000km to Belgium to start my joint doctoral program offered by the VUB and KU Leuven. When I was applying for the post, I kind of felt like that the job description was specifically tailor-fit for me. If my memory serves me right, it read like: “...we are looking for an independent, dynamic researcher who has both process technology background and experience in a semiconductor fabrication facility”. I was not sure about being an independent and a dynamic researcher at the time, but I sure did have a bit of experience.

Our project, on a broader sense, is a marriage of two disciplines—I say, materials science meets microelectronics. We are working on a material called metal-organic frameworks (MOFs), which are very tiny, porous sponges in the nanoscale—a dimension of about 100,000 times smaller than a diameter of a human hair. Being ‘sponge-like’, they have properties suitable for high-value applications such as integration to microelectronic devices. For example, when used as gas sensors (like a dog’s nose) they can detect specific types of toxic gases at very small concentrations. My task is to scale-up this technology which can be readily adapted by microfabrication facilities bringing this dog’s nose to a wider scale of technological implementation, like being integrated in your smartphones.

Could you share a useful insight you gained through one of the doctoral seminars?

I learned that with better science communication, scientists will be even much more influential not just in spreading their research, but also in inspiring younger generations to pursue a career in technology. Better yet, encouraging capable institutions, like the government, to invest more on sustainable R&D.
Have there been times where your research wasn’t really working out the way you expected it to be? How did you cope with this difficulty? Or: What kept you motivated to continue nevertheless.

Oh tell me about it. I have been working on my PhD for about 2 years now and during the first 12 months, nothing was working— I was so frustrated try to make my “dog’s nose” reactor work. I hit rock bottom. With a little encouragement from folks around, especially my supervisor, I took a step back, reflected a bit and tried my experiments using much simpler setups. Sometimes, the most amazing discoveries doesn’t happen in a complex facility with fancy tools. More often than not, all you need is a clear mind… and maybe a pen and paper to organize your thoughts.

Were there unexpected situations wherein skills (…) your learned via your research or doctoral school trainings came in handy?

I already worked a bit in the industry and it was really fun. A doctoral training is equally—sometimes even more—awesome I must say. Daily activities slowly rewires your brain and give you the necessary skills to have a successful career path. Apart from the getting-your-hands-dirty in the lab, I am still amazed how a PhD training can make you think more critically and creatively, not just in your research but also in solving real-life problems.

What was your main motivation to start your PhD? Has working on your PhD changed that initial point of view?

After Uni, I have always programmed myself to pursue a corporate career immediately (financial reasons). But I knew deep inside that I wanted to do research. It did not take me long to realize that. I searched and engaged into a couple of R&D positions in Asia and I came across this Belgium-based group, working on MOFs. Oh boy, I was jumping for joy when I got the offer!

After arriving here, I immediately loved the workplace—top notch facilities with amazing people of very high IQ and more importantly, the EQ (latter being more valuable than the former). For my PhD, I get a chance to work in two places (Brussels and Leuven) which expands my network quite significantly. Also, living in Belgium also felt natural; that whenever I travel abroad for my PhD, I feel a bit homesick with Belgium as much as I do for the Philippines. I guess I have found my second home here.

What career plans do you have after your PhD?

With the PhD, I think options are very much broadened. Some key technical positions in the manufacturing sector even now require a doctorate degree. I have not put much thought about it yet, but in my daydream, I see myself as a scientific manager, leading a group of talented young researchers towards a project related to environmental sustainability. Mentoring is something I see myself doing in the long run—witness people better themselves in things they love doing. Maybe push them a bit out of their comfort zones? But in the level and the pace they want.