How do I find myself comfortable with interdisciplinary research?

Being a graduate in civil engineering, then doing specialization in structural engineering, I assumed that I would be pursuing research in the same field as my profession. However, I am now enjoying my research work in the interdisciplinary domain of Civil and Mechanical Engineering at the School of Interdisciplinary Research (SIRe), IIT Delhi, which is a very important milestone in my career.

I often reminisce about the basic subjects that I studied during my undergraduate course, which included the theory of elasticity, strength of materials and fluid mechanics, same as for mechanical engineering course-works. When we moved forward to the graduate studies of these streams, there we found some other advanced level theories such as dynamics of structures, theory of plasticity, fracture mechanics, finite element methods etc, that can be applied in both the domains. This is how we see a primary overlapping of the basic and advanced courses in both streams. The major difference no doubt lies in the application of these concepts in their respective design fields. This makes these subjects to be taught to the students of both streams seen in a very different light.

Having said that about the theoretical studies, when it comes to the realistic scenario, engineering is meant to solve all the complex problems by application of the science behind it. It never confines itself to a particular domain to be considered. For example, in case of design of an isolation system for a building or a bridge to protect it from the ground motions produced by an earthquake, it takes both mechanical and civil aspects to solve the problem efficiently. We need to understand the structural behavior of the building or the bridge during an earthquake and at the same time, we also need to figure out the mechanical aspects of the isolation device to be installed. This is only very basic example; the problem can be highly complex.

The objective behind the interdisciplinary research is to address such sophisticated projects by implementing the cumulative and innovative solutions achieved through the collaborative endeavors of experts from
various domains. Every discipline has a different perspective to observe the problem and different analytical procedures to find the solutions. Collaborative learning and efforts facilitate a novel key to resolve the complexities in the world.

Being from an engineering background, there is always a motive to apply the science in finding the solution to the critical problems. Many a times, when I look at the current issues, these seem to be resolved easily by cumulative work incorporating more than one perspective at one or another level. I was always passionate about opting for doctoral research after my masters and this drew my attention to opt for research in the interdisciplinary domain. Today, here I am, as a research scholar in the School of Interdisciplinary Research (SIRe) at IIT Delhi since January 2018.

This school manifests the concept of “Unity in Diversity” by incorporating science, engineering, and humanities at the same time on the same platform. I have supervisors from both civil and mechanical engineering departments. Besides, the research committee members belong to different academic branches. The blending of the ideas from the discussions we have over our research work has allowed me to comprehend these different perspectives and develop a novel solution for the given problem. The collaborative approach is facilitating my research with such tools (both ideological and experimental) that are not easily available in any one single discipline. I am very enthusiastic about my research work and specially so while enjoying it in an interdisciplinary manner.

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