Students@nmji

MedTech internship diaries 2018

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In 2018, I applied to eight different undergraduate research programmes. I was fortunate to get shortlisted for the MedTech internship organized by the Indian Council of Medical Research (ICMR).

The goal of this unique programme was to promote collaboration among students from various backgrounds. Among the participants were students pursuing Medicine, Bachelor's in Technology, business management and basic sciences. This programme was jointly organized by ICMR Bhubaneswar, Indian Institute of Technology (IIT) Kharagpur and Indian Institute of Management (IIM) Ahmedabad. At ICMR, we were sensitized to clinical needs; at IIT Kharagpur, we learnt about the solutions to these needs and at IIM Ahmedabad, we were taught how to convert our ideas into full-fledged businesses.

The internship was in two phases. In the first phase of one-week each at the three institutes, we had guest lectures by professionals from the Bill and Melinda Gates Foundation, Biotechnology Industry Research Assistance Council, School of International Biodesign, Consure Medical, incubator cells at IIM Ahmedabad, and lawyers dealing with intellectual property rights. Along with the lectures, we were made to participate in fun activities, one of which was a visit to a bakery to identify the problems there. We were divided into teams; each had students from varied backgrounds. My team had a PhD student from IIM Ahmedabad, who was working on medical insurance, a PhD student from IIT Kharagpur whose work focused on developing prosthetics used in orthopaedic surgery and a BTech student studying electrical engineering at IIT Kharagpur. Four such teams were constituted, and we were supposed to identify gaps in healthcare, identify a technological solution for them and convert our solution into a business model and make mock presentations to possible venture capitalists. We came up with a wearable jacket to prevent neonatal hypothermia only to find out later that such a product already existed and had flooded the market. However, the entire exercise introduced me to novel concepts such as phase-change materials, market research and streams of revenue, which I had not known.

For the second phase, I was paired with a professor of my field of interest. My mentor was Dr Debdoot Sheet of the department of electrical engineering at IIT Kharagpur. This phase lasted for 5 weeks and started with my applying the knowledge I had gained in the previous 3 weeks and come up with a problem statement and a reasonable solution to that. After a week of brainstorming, we decided that we would build a phantom that would mimic the pathological haemodynamics of ventricular septal defect *in vitro* that would be compatible with ultrasound. I was able to present my work at the International Symposium of Biomedical Imaging 2019 in Venice, Italy.

During this period, the programme directors at ICMR New Delhi held weekly progress assessments by online video conferencing, where all the students who were paired with institutes all over the country simultaneously logged in and discussed their work. I had an amazing experience, made friends who I will remember for a long time and gained experience in fields I had never thought I would be interested in.

I got to know about this internship through my friends at AIIMS, New Delhi, and I had to submit three innovative solutions for existing unmet clinical needs as a part of my application. The internship promised a peek into the sphere of innovation, and it entirely changed the way I see the world, and for the better. I would encourage other medical institutes to introduce medical undergraduate students to medical innovation and promote interdisciplinary interaction among students.

Conflicts of interest. None declared

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