

Panel discussion at IIT Delhi.
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Topic: Career options after a Ph.D.

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1. Ph.D. Essentials:

- a. Do not overwork - limit the time on the work and use Ph.D. as an opportunity to develop/improve a hobby or any other interest. Once you limit your time at work, the efficiency will automatically go up.
- b. Learning how to solve difficult problems (in any field) is at the core of the Ph.D. training, and this ability should be helpful in any career of choice. Also, keep on improving your best and going beyond expectations of your supervisor.
- c. Reviewing papers provides an opportunity to learn and improve your knowledge about related areas. Ph.D. students should regularly review papers and stay in tune with latest trends in areas related to their research work. While reviewing papers, do not think that you are doing a favor on the community - in fact, it is an opportunity provided to you by the community.
- d. Whenever you are in an institution, do not give up the opportunity of doing additional courses. They increase your breadth and also provide you with more learning.
- e. Working in systems has a longer gestation period and thus papers start coming late while some other domains may have papers coming in early during Ph.D. - This shouldn't be a concern as this is understood and appreciated by the research community. Hence, do not compare yourself with your friends in other domains and unnecessarily get demotivated.

2. Being confused about the career is not a problem - this is indeed an opportunity to try out different paths and choose based on the first-hand experience. Moreover, this may provide you to know and understand aspects of different paths and choose for yourself.

3. Important soft skills in career:

- a. **Patience** - must in an academic career
- b. **Communication** (and presentation) skills: written and oral - useful in all career options
- c. **Inter-personal skills** - primarily must in an industry career where you need to work in teams. Someone can survive in an academic environment working alone
- d. **Time management** (and discipline) - must in all fields. Very important for academic.

4. Academia and the newer IITs:

- a. **Academia** provides freedom which is unmatched in any other career option. Both options- (a) working in groups and (b) contributing individually are possible.

- b. Faculty positions at the older/new IITs are looking at the quality of Ph.D. and the publications. Obviously, being able to communicate clearly is essential towards teaching. A foreign postdoc is not a necessity.
- c. The postdoc should be done at a lab where work related to your research interest is going on. Foreign exposure helps give a better outlook, improves networking skills, and increases collaboration.
- d. The **newer IITs** are a good opportunity for students interested in academics - if someone is not able to make it up to the older IITs, do not get demotivated. Newer IITs are indeed good and will provide better chances in some aspects - you don't have to compete for students with established faculty members. The funding is going to be better since they are the focus of the government.

5. **Startups**

- a. Indian environment is becoming better in terms of incubating **startups**, and passion is needed towards meeting the last mile to make a startup. Other skills like man/time/financial management are also required.
- b. As the number of research students increase, **research startups** will become a reality (in the near future).

6. **Industry careers -**

- a. Industries have both research labs and development wings - both require you to demonstrate your value to the organization continuously, and the research outcome should provide commercial benefit to the company in the short term. This becomes challenging at times (esp. in case of research labs). For the past few decades, there has been an overall trend of reducing the size of the research labs (as they are considered costly to the Industry). Development wings essentially require debugging skills and working in groups towards a short term target.
- b. Industry careers - some companies provide separate technical and managerial ladder. Technical ladder may allow contributing individually and deal primarily with technical aspects. The administrative ladder requires managing people and hence interpersonal skills start becoming more important.
- c. Working on the same topic as Ph.D. is not very common when you join industry after Ph.D. However, the analytical and research skills gained during Ph.D. would be useful and would give you an edge over other employees who do not have a Ph.D.
- d. Seeing something working and being used by masses is primarily seen in industry careers. Though it is a personal choice, satisfaction of seeing your own product being used may provide more satisfaction compared to publishing papers.