

Why Do Ph.D in CS/IT ??

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TREND WATCH Research in IT

Research jobs, which always are towards the higher end of the compensation package in the West, are now beginning to be that way in India as well - By Pankaj Jalote

Software companies have emerged major employers of engineering graduates in the country. Though regular software jobs continue to increase, area of research and development is rapidly expanding in the IT sector. In a recent issue of Science, the cover article was whether India is becoming a research and Development (R&D) hub or not. The article states that over 100 labs will be set up within a few years, of which many will be in IT.

The recent trend shows how rapidly R&D is increasing. Till a few years ago, most companies typically had large development, but no research centres. The situation, however, has changed in the last few years. Many multinationals, which include Microsoft, Motorola, Lucent, Google, Philips, Sony, Erickson, HP, and Intel have already opened their R&D centres in the country. These centres are over and above their regular development centres.

There are at least 10 R&D centres operating today, and many more are likely to open in the next few years. It is fair to assume that in the next five years, there will be over 25 R&D centres in India, each employing 50 to 150 people, mostly Ph Ds. That is, a R&D centre will typically recruit about five to 10 Ph Ds per year. This translates to at least 200 research positions opening up each year in industry for Ph D graduates. In addition, there are the traditional opportunities in teaching and research labs. In India, there are probably no more than 20 Ph Ds graduating in Computer Science each year. That is, there is an acute shortage of research manpower.

Research jobs, which always are towards the higher end of the compensation package in the west, are now beginning to be that way in India as well. An informal survey of a few R&D centres found that the starting salary of a fresh Ph D is between Rs six lakh to 10 lakh per year. And as the supply mismatch occurs, this can only go northwards. These levels are better than what a B Tech or BE graduate will be making after four years to five years, the time he takes for completing his Ph D.

Besides the solid compensation, there are other aspects in which a research career differs from a work profile of a software engineer. Let us first understand a research career in a company a bit better. Broadly speaking, the R&D group of a company is meant to create knowledge which other areas of the company can use to do their jobs better. R&D is typically a cost centre, which does not directly generate revenues but helps others generate more revenue. Due to the nature of work, a researcher typically is awarded a greater degree of freedom and has more control over his hours as well as the

nature of work. There is a great scope for using one's creativity and participating in challenging problems. A research setup typically is small and hierarchy-less, resulting in a more relaxed and informal work environment.

A researcher is inevitably a member of the global research community, give him a sense of belonging to a wider world and not just a company. Publications resulting from research provide global visibility and provide you a deep sense of satisfaction which comes in seeing the work published under one's authorship. As in youth there is a travel urge, it's important to consider the travel aspects of the career too. In a research career, shortterm visits abroad often occur for meetings and conferences. Researchers often visit for longer periods for joint work or as visiting faculty in a university - it's rare to find a good researcher in Computer Science (CS) or IT who has not lived abroad.

Given the nature of the research career, it's clearly not for everyone. It's a specialised career really meant for a few - those who are bright, eager to learn, innovative, and self motivating. Typically, no more than top 10 per cent of the class in an average college should consider this career - the percentage could be up to 20 per cent for better institutes. For this, it's best to do a Ph D from a top institute like the IITs, IISc, TIFR and Math Science Institute. These places have many unfilled slots for Ph D in CS or IT and are always looking for bright students to fill them. A bright and committed student can finish his or her Ph D in about four years, during which he or she is given a very good stipend too. After a Ph D, a graduate is ready to be a member of the global research community and a solid career in research.

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