Assignment # 01

Based on the checklist on page 25 in the textbook, interview an expert researcher and submit the notes that you will take during the interview (you can scan it and submit here).

For this assignment I have interviewed Dr. Palden Lama. Dr. Lama is an Assistant Professor in the Department of Computer Science at the University of Texas at San Antonio. He received the BTech degree in electronics and communication engineering from the Indian Institute of Technology, Roorkee, in 2003. He has four years of professional experience in the software industry. He received his PhD degree in Computer Science from the University of Colorado, Colorado Springs in 2013. He has also worked as a research aide at the Argonne National Laboratory during his Ph.D study. Dr. Lama's research interests include the areas of Cloud computing, sustainable computing, autonomic resource and power management, and big data processing in the Cloud. [Source: http://www.cs.utsa.edu/~plama/]

This semester I am working as his TA and it was easier for me to talk to him in details regarding his research methodology. Moreover I had opportunity to talk to him regarding his research interest, which eventually interests me to learn more about cloud computing and its different aspects.

I have tried to follow the instructions while interviewing Dr. Lama and question 6, 7, 8 are closely related to the concepts covered in chapter 1 (of the text book). Before starting, I have briefly described the purpose of the interview and the topics covered in the book chapter to Dr. Lama.

Following are the question specific responses and suggestions received from Dr. Lama:

1. How do you start a research project?

Dr. Palden Lama: First of all you have to know what big area you are interested in. My area is 'Cloud Computing'. So, in this area there are many problems that people are dealing with like performance management, power management, resource management; there are many aspects of this research area. So, basically I start with which aspect I am interested right now. You have to know what people are doing, like what latest research is going on. Otherwise you'll end up re-inventing wheel may be, which is a waste of time and resource. So, you must know what is going on. I would look at top conferences and journal paper, do a very good review of that – thus I know where people are at. After reading many recent articles you will get a very good feel of what kind of problems people are dealing with. Basically there are two types of research people do – finding a new problem, finding a new solution. First one is more difficult, but you can go both ways. Once you have identified the problem, try to do some case studies, try to implement part of what people have already done. Try to verify other works, implement your own ideas and see how the research goes.

2. What specific tools do you use (e.g., library resources, computer software, forms of measurement, statistics?)

Dr. Palden Lama: There are lot of software – just for writing I use LATEX, then for drawing diagram I use GNUPLOT, I use MATLAB lot – there are many in-built function, I use python – you can develop your prototype real fast. I use a lot of virtualization software – XEN (hypervisor) and VMWIRE. There

are other virtualization softwares also, but I use these two most. Right now they are sufficient for my research.

3. How did you gain expertise with the various tools you use?

Dr. Palden Lama: Basically, I did not get any formal training on them. Finding online tutorials and using them a lot helped me to gain expertise with those tools.

4. What are some important experiences you suggest for a novice researcher?

Dr. Palden Lama: Read a lot of papers – good papers. Read recent papers, read classic ones also. If a paper is cited by many people, then it is a good paper. Find out what people are doing. When you are reading papers first you need to understand the content. Then you must be able to criticise the paper, ask questions regarding its feasibility. Finally, you should appreciate the research – how much effort needed for the research, their contribution. Reading will help to find your motivations and interests. The deeper you go, you will get better result.

5. If I wanted to learn how to become a competent researcher, what specific tools would you suggest I work with?

Dr. Palden Lama: Look for top conferences of your area – go to their websites, look for publications. Regarding other tools, there is no specification of using any particular tool. It differs from person to person. For me, I prefer online resources more.

6. What is the importance of collaborating with other researchers?

Dr. Palden Lama: It is very important. If you are conducting a large project, then you can't do it alone. In fact granting agency also encourages collaborating other researchers. It helps you to address different aspects of a problem. Even interdisciplinary collaborations are also helpful. You are having expertise from different disciplines and can deal with a problem better.

7. How should a researcher identify and avoid dead end in a research?

Dr. Palden Lama: There can be two kinds of goals – larger, narrower. In narrow goals, it is quicker to find the dead end. When you are conducting a bigger goal you must set and cover milestones from time to time. Even before starting the research you can do small case study, without implementing the whole. So, literature survey and feasibility study both are important to avoid dead end. Furthermore you shouldn't be afraid of dead ends in a research. You can always use your findings in other researches.

8. Since you have suggested reading different magazines, they are covering the area in broader aspects – isn't it a challenge to find a particular direction to choose for a novice researcher?

Dr. Palden Lama: Read more. That's how you choose one of them. You need to read more and more. You need to go deeper for better results, concurrently you need to read about different aspects. Eventually, you will find out your interest and field of research.