

Virtual Undergraduate Town Hall FAQ
Using Machine Learning for Network Capacity Management & Extracurricular Activities and Time Management
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Using Machine Learning for Network Capacity Management

What is network capacity management?

- Network Capacity Management is the process of ensuring sufficient resources are on the network to satisfy performance requirements.

What is Machine Learning?

- Machine Learning as it is used in the field can be defined as the fundamental laws that govern a machine's ability to learn efficiently and correctly.

What is the difference between supervised and unsupervised machine learning methods?

- Supervised learning allows a learning algorithm to produce an inferred function based upon the observation of labelled datasets.
- Unsupervised learning involves the use of a machine learning algorithm to determine patterns based upon clusters of unlabeled datasets.

How did you get interested in machine learning?

- My interest came up out of several different avenues. My first encounters with machine learning came as an undergraduate in Egypt. I took courses in the subject and also had an advisor who worked in computer vision, and used a lot of unsupervised learning in his work. Once I was in my PhD program I used my knowledge of machine learning and data analytics in solving network management problems. In the process I really learned to love the subject. I continued learning more and improving my skills as worked at Berkley Lab, applying data analysis for science problems.

Do you have any advice on how undergraduate students can find their research area of interest?

- A good place to start would be to perform research as an undergraduate. Get involved in a research program whether it be at your own school, or another institution. There are many programs out there funded by NSF, including those operated by CRA-W. Another step I would suggest is taking courses in areas in you feel you might be interested in, especially if those courses require a research project. Finally, finding a position at a research institute, can also be very useful too.

If I want to apply to a PhD program, should I focus more on software engineering next semester or focus more on statistics?

- You should think about (1) things you want to learn, whether you need to improve your software skills or statistical analysis skills (2) the PhD program you are interested in, is it more focused on software or analytics, finally check the class requirements for each, a class that offers assignment or work that can be framed as research is probably better to prepare for your PhD program.



Extracurricular Activities and Time Management

What is considered an extracurricular activity?

- My definition of an extracurricular activity is an activity that is outside your normal realm of study or work, or outside your daily priorities. What constitutes 'normal' is different for everyone.

What are some effective time management strategies?

- The top strategies I would suggest is: Having a list of clear and focused goals/ tasks, learning to make that schedule dynamic and flexible and learning to say no.
- Some steps I would suggest to help better manage your time would be to: Plan your schedule, either by priority, day to day or short and long term goals, learn to execute that schedule by avoiding procrastination, limiting interruptions and limiting multi-tasking, and finally, taking time to evaluate and adjust your schedule by identifying areas of high and low priority, redefining those priorities, and asking for help.

What skills do you think are important for grad students to have?

- I think the most important skill to have is persistence. If you take on a graduate program, make sure you are able and willing to follow it through to the end. Even if you find out towards the end of your program that you are no longer interested in your research, or do not like the work, that degree is going to help you secure a job until you can find something else you like better. Finally, showing people that you have the ability to get things done despite unfavorable circumstances is very important.