Arturo Deza's Guide to Grad School - for '3W' [1] internationals

[Disclaimer] I am still young, mildly eccentric, full of energy and ideas, but still haven't got any proof to say that these rules work, if they do I might get into good places for grad school and hopefully you as well (I'm applying to start Fall 2013). Anyway please let me know what you think and give me your feedback in case these tips have helped you out too, and/or have given outstanding results. Comments/suggestions to arturodeza@gmail.com

If you've ever seen Fight Club please read these recommendations with the voice of Tyler Durden inside your head. ;)

1) **Learn English.**

2) **LEARN ENGLISH.** Speak english, write in english and think in english. The people who literally own any field of research whether they are native english speakers or have funny accents, can communicate fluently and effortlessly their ideas. If you want to get known in the community, publish your ideas in english, if not it is most likely that no one will care. You know you're pro when you can makes jokes (or flirt) in english.

3) **Work, read and play every day.** When you do what you love, working is playing, and those who have achieved mastery in any art have played their game intensely, losing multiple times, but learning after every failure, striving to get better and better at what they do.

4) **Go out on weekends.** This statement might be seen as controversial, but when you are in countries where science isn't really a big thing, having the right connections and knowing more and more people that are into science is really hard. Expand your professional and social network. Think about the greatest figures you admired as a kid, were they lame and boring, or were they fun and interesting people? I am by no means trying to state that everyone should be a party animal, I respect introverts and extroverts equally, what is important is being able to communicate your ideas with confidence to different target audiences; and going out on weekends whether it's talking about the future halloween party, video games, girls/ guys, research, life, politics, literature, will make you adapt and learn from different ways of communicating these ideas to different spectrum of people.

5) **Teach.** As I once read (please correct me if I'm wrong): seek the master, observe the master, copy the master, become the master. Not everyone is good at teaching, but practice this skill as you yourself will learn more about the art/science you practice while you preach your craft.

6) **Switch TV for YouTube.** Ok this one seems a bit odd and non coherent with the previous items. TV has commercials, they're good, but you are losing time watching commercials and sometimes watching things that you aren't really interested in and are rather boring, but you anyway are there sitting and watching for the sake of doing something. It's ok to watch soap operas and reality TV shows, everyone has done (or does) it, but do not get overly consumed by these shows and programs. If it's your hobby great! YouTube in the end has probably anything you want to watch, so optimize your time by watching what you need. YouTube also offers an intelligent recommendation videos feature, so you can optimize your time and surf more options of what you like. I personally do not care if it's the Kardashians or Richard Feynman's lectures on Physics, your time is optimized if you switch to YouTube. *Disclaimer:

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[1] 3W : 3rd World. Not to be used in an offensive way, but rather to motivate those that strive to become better despite where they're from. I am from Peru.

I am not getting paid by Google/YouTube in anyway for saying this, it is just a personal preference and idea.

7) **The Oracle exists, and it's name is Google.** If you want to know how to make an atomic bomb, how to do research, how to be a rockstar, how to marry a supermodel ... Google it! Google and/or any search engine has the answer to almost any question you can imagine: the good, the bad and the ugly. And yes, even if you don't know if you want to L1 or L2 normalize your cost function, Google it as well ;)

8) **Know and practice the scientific method.** Basically, if you are a scientist in any type of way, actually even if you're not, know the scientific method and always ask questions, make new hypothesis about things, come up with new ideas, look over previous work/research, discuss with your peers/friends, look for evidence, do experiments, compare results, draw conclusions objectively. This applies to almost (if not) everything.

9) **Run, before you walk.** Sometimes things seem so distant and impossible that you eventually get overwhelmed about the idea of failure, because the goal appears so unreachable that you just stop, and what's worse you do not even try. Frequently, it is necessary to expose yourself, and to have more problems than one can handle (life is always like this, so I guess you're already doing ok). You will be amazed at how courageous you are when faced in this situation, and the wisdom that you will have learned by doing this is priceless. This applies to research projects & in life.

10) **Be a visionary, but look at the world with intense realism at the same time.** Sometimes research projects are just too hard to be done, specially if you don't have any faculty advisor following up on your work, or guiding you. I personally started out on computer vision by myself (with the help of Google), because there was no faculty advisor or even a computer science deparment... in cases like these it can be quite hard to measure how difficult and/or plausible it is to do a project, so read as much as you can before starting anything that might sound really hard. Usually ideas that sound hard are almost impossible (assuming an undergraduate level of the reader), and tasks that look easy end up being quite difficult. Know yourself, know your peers. It's good to have mind-blowing ideas, that is what separates the good from the great, but everything takes time and patience, there will be a moment for you to write your 5th symphony, and it probably will be at least after or during (if you're a future Fields Medal candidate) your PhD.

11) **Get a hobby.** Enjoy life. Even though I still haven't started grad school, my opinion might be slightly biased, I know many grad students that I have met on numerous summer schools I've been to from around the world that just hate,dislike, or bore their PhD life. This usually happens with lack of personal motivation I guess, not receiving pleasure in another form besides research, and/or doing a PhD for the wrong reasons. A quick way of bypassing less intense types of crisis is to get a hobby that you can use as an escape valve, not because you hate your PhD or grad school, but because the amount of work you put into the week was very stressful. At UCSB I met some awesome people who would reward themselves by surfing on weekends, hiking, or if you're feeling bold enough: dancing. Love your work, but have some distractions once in a while.

12) **Do a sport.** This one is one of my favorites. Once again a slight bias from the west coast culture, but they are people who love themselves & love their body. I personally don't like the fact that some Science and Engineering students have self esteem issues. Well, in this world we've all had them, but one way of working on these issues is by practicing a sport. Not only will

you have fun and make friends, but also you'll be a fit and healthy person. Respect the mind, body and soul (if it exists). You'd be surprised how many students don't make the cut for their PhDs because they aren't psychologically healthy, which is a consequence of being physically unhealthy (or maybe the other way around). People who practice sports are usually more stable. You will improve your inner and outer self.

13) **Do research.** At last the most (or maybe least) important one of all. Publishing a paper, going to conferences, attending summer schools, getting projects done. This is what proves to people that you can compete with others and yourself. Grad school admission reviewers are looking for students who know their stuff, and not just throw some fancy buzzwords to impress the community. What makes this item (13) the most interesting is that, if you have/do item 1-12, and not 13 you most surely won't get into a top school; but at the same time if you only do 13 and not items 1-12, chances are looking almost the same. These guys want the 0.00000000... (and counting) ...1% of the World, the top people and future leaders who are the best at almost everything they do. So play and work hard, and don't forget to have fun!

14) **No excuses.** And remember **never put excuses** about where you're from and how hard life is there. Life is hard everywhere, those who have leaded the world and revolutionized humanity in any art/science didn't whine about it, they were too busy doing more important things.