March 2018, I started a Ph.D. at the University of Grenoble with a total misconception of what awaits me. **"Take my theme, work until dawn, produce results, and write tons of papers,"** I thought. You got it right; it wasn't as straightforward as it seems :(. My luck, I was in a superb team and great colleagues that advised me correctly throughout this journey. I had the chance to move a lot during my Ph.D., meet different folks, and observe how successful students work and the mentoring process. Combined with what I learned from my great supervisors (Alain Tchana, Renaud Lachaize, Daniel Hagimont, and Noël De Palma), I brought up some tips that I apply and firmly believe it can help you enjoy the most out of your Ph.D. journey.

(1) Push your supervisor(s).

During my master's internship, one of my supervisors, Daniel Hagimont, used to say: *"A thesis is like a farm exploration in the dark. Your supervisors have a hint on what to find and where to go. The grad student has the torch and leads the exploration; depending on what the grad student sees, the supervisors can adjust the direction to take, the objectives, and the tools to use".* As a graduate student, you will have to work on novel ideas, try things. An error is to struggle in your corner without informing your supervisor(s), you need to keep them informed of how the work is going, your troubles, your suggestions, your results. Don't always wait for the supervisors' signal for that. I've heard supervisors complain of their Ph.D. students saying they don't get in touch regularly, and Ph.D. students complain of their supervisors declaring they don't follow their work. Know your supervisor(s), deal with that, **keep him/her/them engaged**. It builds a sense of trust between you and your supervisor(s) that keeps you moving. As one of my Ph.D. supervisors, Alain

Tchana, use to say, *"I evolve with those who evolve with me."* To summarise, *keep them engaged, or they can quickly get bored, and you will feel that negatively.*

(2) Pro-activity is a must.

It may sound obvious, but it didn't for me at the beginning. Being task-oriented, I carried out my work, present results, and wait for the next steps. Now looking backward, it gently makes me laugh :). As a Ph.D. student, you are not an engineer; you must predict what lies ahead (at least try). The best way is to **write down the story** of your work; it helps you detect if the work is coherent, what the pitfalls are, and gives you a good overview of what needs to be measured and brought forward. Don't be afraid to expose your ideas to your supervisors whenever you think you got something, at first, it may feel uncomfortable (especially during meetings). It is easy to imagine *"what if my idea is stupid, what if my observation is non-sense, what if I missed something?"* You know what? There's no silly question or foolish comment. Pinpoint everything, ping your supervisors when you think you have something, propose directions (light the farm), **and be pro-active**. When jotting down your work, you will have a lot of ideas to suggest, and you will better understand your supervisor's directions and concepts. Overall, just keep this in mind: *look ahead of your work, and don't always wait for directives.*

(3) Stay updated, and engage with other's work.

How many times have I heard this phrase? *Djob, regularly read papers from top-tier venues Eurosys, ASPLOS, OSDI, SOSP, Usenix ATC, etc ... that deal with your topic*. Alain Tchana continually advised his graduate students of this (including me); at first, it may seem hard, but with enough struggle, you will get the gist. Performing a literature survey helps you keep track of what others are doing and enables you

to position your work to state of the art. I advise you "**How to Read a Paper**" by *Srinivasan Keshav [1]* that proposes a three-pass approach to get the most out of a scientific paper. Keep notes of the papers you read and your reviews for the paper; this will help you write the related work of your papers/thesis. Aside from performing regular literature surveys, engage in your colleague's work, sound weird? Regularly, try to know what your colleague is doing, have him/her explain his work to you, and do the same. You can mutually help each other, and by doing so, you extend your knowledge of the field. I always try to know what others are doing, engage with them, and try to discuss their difficulties. It is exciting and, most of the time, relieve you a bit from the stress of your work. Plus, it strengthens the bonds with your colleagues and, in a context where rushes towards deadlines are frequent, knowing the work of your colleagues can become handy if an additional task force is needed. In a war, you need comrades in arms to support you and help you survive throughout the war. The same applies to your Ph.D., engage with your colleagues, and mutually help each other survive the war :).

(4) Rejects are part of the journey.

"We regret to inform you that." You are going to receive this message or variants whenever a conference/journal rejects your work. Trust me, all graduate students (and higher) receive sooner or later rejects, but the difference is how everyone reacts. Academics face more rejects than accepts. Most of the time, you are down, feeling low for your rejected work, passing through the reviews, sometimes accusing reviewers that they didn't understand your novel idea. It's normal to feel low, but don't stay in that state too long (b*eing rejected by your crush does not mean you are thrash :))*. Reviews are there to improve your work (**some reviews**

**may seem out of scope or harsh, yes there are reviews like that, it is life :(**). Skim through them, make a summary, highlight the strong reviews against the weaker ones, and propose a plan to improve your work based on these reviews. Please submit your plan to your supervisors; they will be glad to read your review summary and plan since they don't always have the spare time to read the reviews thoroughly. I advise you these slides by *Gernot Heiser [2],* which helps you understand reject is part of academic life, and how to improve your paper quality. Be humble, work hard, and the results will come. You may be in a team with successful members; it shouldn't stress you, take this as an opportunity to learn from them, and improve your work. As a personal story, my first work got accepted after nine (9) rejects, at the first reject, my mother was quite happy because it will teach me humility :), if after nine rejects, you're not humble, I don't know what will humble you. If you doubt, I am humble now :). To summarize, *rejects are casual, bear with it.*

(5) Enjoy yourself.

I consider this last point as the most important, take it easy. I repeat "**take it easy**," it may sound trivial, but most graduate students suffer from a lot of stress during their Ph.D. Have a life aside from your Ph.D. It may not seem easy since most grad students, family & friends are thousands of kilometers from them, are far from their environment and their hobbies. But you have to try, find ways to do context-switch. Take your team members, walk around town, explore the city, **have fun**. Please take this seriously; everyone reacts differently when isolated, look after your team members, find those who are vulnerable and get news of them (don't force if they aren't willing to interact, you would've tried). People easily express their

feelings when approached. Thinking this way not only helps them but also helps you. It is just another title; your mental health is irreplaceable, work for your Ph.D., but don't forget to enjoy your life; sound mental health helps maintains your best level. As an example, my supervisor's usually organized barbecues or invite us at home to discuss everything. It helps build a community, destress, and feel relieved. Just take it easy, and you will be more productive. Overall, *just have fun*.

I feel blessed because great people surround me; I got to meet inspiring folks that advised me during my Ph.D. journey, I don't think I did a particular splendid Ph.D., but I'm happy. I enjoy doing my research; it is an area where you get to meet interesting people from different horizons and discuss exciting stuff. I sincerely hope this blog of mine will help any fresh grad student during his journey. A huge thanks to folks in the **grad-students-only** channel of the **Computer Science and Research** slack team (that I advise you to join if you're of the domain [4]) for their propositions. Thanks to Boris Teabe and Vlad Nitu (former laureates of the ASF GDR RSD best thesis prize) for their guidance throughout writing this blog. Thanks to Ekane Brice, XXXX, XXXX, and XXXX for proof-reading. I hope you enjoyed reading this, don't hesitate in leaving your thoughts in the comments section.

[1] https://web.stanford.edu/class/cs244/papers/HowtoReadPaper.pdf

[2] http://gernot-heiser.org/talk-howto-paper.pdf

[3]http://mis-misinformation.blogspot.com/2012/03/margos-tips-on-writing-thesis.html

[4] cs-research-practice.slack.com