Away from the bench: non-academic careers for a postdoc

Lia Paola Zambetti, (Agency for Science, Technology and Research (A*STAR), Singapore)

Abstract

The dream and ultimate aim for most postdocs in every scientific discipline is to work in academia, yet very few of them will manage to get a permanent university position. The article describes the story of a physics researcher who became professor at the young age of 32 and will then offer an overview on alternative (ie, non-academic) career options for postdocs. In particular, a patent attorney and a science writer will share their experiences and describe the importance of their jobs

In the research world, it is known and generally accepted that only a minority of postdocs from any discipline will make the transition to lab head/tenured professor. The percentages will vary according to the field but most young scientist will have to look for a permanent career out of academia (Sauermann and Roach, 2012; Taylor, 2011). Becoming a professor, especially at a young age, is seen by many as the Holy Grail of academia, yet Prof Giulio Chiribella at 32 became Associate Professor (Tenure Track) at the Institute for Interdisciplinary Information Sciences in Beijing. He shares with us his story: "I completed my education and research training at the University of Pavia (Italy), where I did my undergrad, PhD, and my first three years of postdoc. These years of formation have been fundamental for my later career, which benefitted immensely from the close collaboration with my mentor Prof. Mauro D'Ariano and his research group. In 2009 I moved to Perimeter Institute for Theoretical Physics (Waterloo, Canada). The Institute has been another great occasion for professional growth, due to a vibrant research environment where I constantly had to interact (and, somehow, confront myself) with outstanding researchers working on topics entirely different from my own. In July 2012, I moved to Tsinghua University, joining the Institute for Interdisciplinary Information Sciences, a new research institute founded in 2011 by Turing laureate Prof. Andrew Yao. Albeit brief, my experience at Tsinghua has already been very intense: at the moment I am teaching an undergraduate course, supervising three students, and organizing an international conference. I am also involved in the activities of the Institute... and trying to learn Mandarin, of course! The new challenge has just started, I hope I will have good stories to tell you in the future". From his brief account, we know that worldwide mobility and working in prestigious academic institutions are fundamental ingredients of successful academic careers. Still, many postdocs who seemingly tick all the boxes never make the breakthrough- what happens to them?

Traditionally, at some point in their career most postdocs move to industry. The pros of such a choice are evident: there are more opportunities there than elsewhere, you still get to do actual science, and the salary tends to be better than in academia (Kreeger, 2001; Kreeger, 2000). But venturing away from the bench into business and marketing is something some people may not be entirely comfortable with. So what else is there? Opportunities are to be found in the world of patenting/intellectual property regulation. We have asked Maik Brinkmann (Senior Associate, Patents Department at SPRUSON & FERGUSON (ASIA) PTE LTD - formerly trading as Ella Cheong Spruson & Ferguson) what it is like being a patent attorney: "In essence a patent attorney is at all times a kind of interpreter between the world of science and the world of law. A patent attorney needs to know science to be able to communicate with the inventors and needs to know the law to translate science into a language a non-scientist, such as a judge, can understand. A patent attorney is also a strategist who tries to get the most protection for an inventor's inventions. To work as a patent attorney one needs to read a lot and have a robust appetite for small details. Extreme diligence is required due to the pressing deadlines of a full work schedule. Getting the most out of an invention and hunting for the best possible arguments to present to the examiner or judge make this profession very exciting. The job is not about reputation and publication but to provide the best possible service to your client or the company you are working for, in case of an in-house position. A scientist can be seen as someone fighting for his own research topic while a patent attorney is a team worker and service provider". However, being a patent attorney is not the only way to be an interpreter between science and the rest of the world. Journal editors daily process large amounts of science and their work results in publications that the scientific community at large can use. Some scientists also become science journalists or deal with science communication for a lay audience, helping to bridge the knowledge gap that exists between the general public and the super-specialized individuals that dwell in most labs around the world. Being able to communicate one's research simply and effectively is one of the most useful skills for a scientist, and yet one of the most neglected ones. One thing is "doing" science, another –an entirely different one- is "communicating" it-whether to a specialized journal or to the general public. Here is what Jean Luc Lebrun, a writer and trainer of scientists, has to say on the topic: "Once you are unable to use half the words you know in daily conversation, once your mother becomes your null hypothesis when expecting rapid scientific language acquisition, once you view both your own children and your lab mice as tamagotchi - you, my friend scientist, are in serious peril. Science is robbing you of your humanity. And it does so scientifically and methodically. First, it isolates you. Then it disarms your statistically insignificant feelings and lets facts lord over them with exponential power. Finally, it transmutes uncertainty into non-commitment and social engagement into social detachment. Your uncertainty is a dream come true for certainty mongers who unashamedly turn your maybe into a yes or a no according to their agenda. So is science communication hard? Absolutely. Is it necessary? Absolutely. What does it require? First, goodwill, then techniques, then communication. It starts at home, in schools, in your community, on your blog, in your letters to the local press. And it starts now". The importance of good science

communication cannot be stressed enough, but the possibility of a career in this field should not be overestimated-at least, as a full-time job and in the current economic climate. However, if you do not want to stay at the bench (or at your computer) forever, are passionate about science and enjoy talking about it, science communication is an interesting route to explore.

The article does not pretend to be a comprehensive review of all the professional avenues outside of academia, but it should be enough to persuade some that there is life beyond academia and that there are enough pathways out there to suit everyone's taste. Any scientific PhD should give you an edge over the competition whatever the field. Therefore, if you, the postdoc, are unsure of what you want to do- so long as you are flexible, you should never be short of options

References

Kreeger, Karen Young. 2001. Academia or Industry? The Scientist. http://www.the-scientist.com/?articles.view/articleNo/13205/title/Academia-or-Industry-/

Kreeger, Karen Young. 2000: "Science Salaries" The Scientist. http://www.the-scientist.com/?articles.view/articleNo/13159/title/Science-Salaries/

Sauermann, Henry; and Roach, Michael. 2012. Science PhD Career Preferences: Levels, Changes, and Advisor Encouragement. Plos One. http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0036307

Taylor, Mark. 2011. Reform the PhD system or close it down. Nature 472, 261. http://www.nature.com/news/2011/110420/full/472261a.html