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CAREER PROFILES Options and Insights

JORDAN DAWE | Data Engineer, EnerNOC, freedryk@gmail.com

Degree: When, where, what, and what in?

I completed my PhD in physical oceanography at the University of Washington in 2006. My thesis involved computer modeling of natural climate variability in the North Pacific Ocean.

Did you stay in academia at all, and if so, for how long?

I did two postdocs from 2006 to 2011 at the University of British Columbia (UBC), modeling upwelling through continental shelf canyons and entrainment in shallow cumulus clouds. Initially, my goal was to find a permanent position either in academia or working for the Canadian federal government, but it soon became clear there were few permanent jobs in climate research available in Vancouver. However, my wife had found an excellent job with the public library, so we decided to stay in Vancouver. I spent another year working at UBC as a sessional instructor before moving into a programming career.

How did you go about searching for a job outside of the university setting?

During my PhD work, I spent some time learning the Python programming language, which has many libraries for scientific analysis and numerical processing. Python is also used for Web development and data analysis by many companies, including Google, Dropbox, and Mozilla, and I figured it was a good job skill to have if I ever left academia. With this relatively small programming background, I set out to find employment as a software developer.

The software development industry makes extensive use of job search websites such as Indeed.com, careers.stackoverflow.com, and Angelist.co. My job search strategy was to apply to every

job on these sites that I was remotely qualified for, with a focus on positions like “data scientist” or “data analyst.” I focused on smaller companies and start-ups that did data analysis as part of their business, as I found they were more likely to be interested in a programmer without formal training than a large, well-established software company.

Is this the only job (post-academia) that you’ve had? If not, what else did you do?

After sending out about 20 resumes over the course of six months, I was hired by the social networking and art website DeviantArt.com to do statistical analyses of their user and image data. I calculated usage statistics from Web server logs, generated search metrics to rank popularity of media on the site, and built classification systems to categorize images. Since the site hosts over 300 million images, a large part of this work was ensuring our algorithms could run efficiently in parallel on computer clusters. Surprisingly, I found that many of the statistical distributions used to describe cumulus cloud populations can also model user behavior on the Internet, so some of my previous academic work was directly applicable to the job. My position with DeviantArt.com lasted slightly less than two years before I was laid off.

What is your current job? What path did you take to get there?

After four months of searching, I accepted a data engineer position with EnerNOC, a company that provides energy management and monitoring services to utilities around the world. I write code to help transfer data in and out of data stores and translate statistical models developed by my team in the R programming language



into Python for running on Web servers. Many of my team members recently completed PhDs in fields such as glaciology, particle physics, and electrical engineering, and have very little formal training in programming. Our main work is doing time series analysis of utility energy usage to improve their efficiency.

What did your oceanographic education (or academic career) give you that is useful in your current job?

I use my academic training in data analysis, statistical techniques, and programming every day in my current job, but there are many other skills I have found profoundly useful. The work I did generating plots for academic publications taught me graphic design and data visualization skills, which I use for building user interfaces. Through participating in seminars and academic conferences, I developed public speaking and presentation skills that are incredibly valuable for working with other teams in industry.

Is the job satisfying? What aspects of the job do you like best/least?

I would say that my current career is less satisfying than academia, but I have better work/life balance and overall I am happy with the change. The part of the

job I like least is the lack of a larger mission and social purpose beyond achieving commercial success.

Having said that, there are many parts of the job that I like better than academia. I am much better paid, my job is easier and less frustrating, and I rarely take work home with me. To my surprise, I find that private industry is often more collaborative than academia, requiring close coordination among many teams to complete projects. One of my main worries about switching careers was that I would be bored, but instead I find myself constantly learning and being challenged.

MICHELE MORRIS | Consultant, mmorris1261@gmail.com

Degree: When, where, what, and what in?

I earned a PhD in physical oceanography from Scripps Institution of Oceanography, University of California, San Diego, in 1996. My dissertation focused on variability in ocean currents and heat transport at El Niño-Southern Oscillation time scales.

Did you stay in academia at all, and if so, for how long?

After graduating, I spent a couple of years as a postdoc, six months at Scripps and 18 months at Woods Hole Oceanographic Institution. I then returned home to New Zealand to take up a job as an oceanographer at the National Institute for Water and Atmospheric Research (NIWA). At the time, I felt lucky to have landed a permanent research position with a guaranteed salary and relatively secure funding. I was also happy to not have any teaching commitments. During this period, there didn't appear to be many academic opportunities available in my field in the United States.

I stayed at NIWA for about three years and worked on some interesting projects. I felt well prepared for the job after serving my "apprenticeship" in the United States. However, I started to feel more and more that I was not that well suited to academic

Do you have any recommendations for new grads looking for jobs?

First, developing coding skills in a relatively mainstream programming language like Python, R, C++, Java, or Javascript is invaluable. Nearly every company has some need for these kinds of skills, and they are extremely useful in academia as well.

Second, I found persistence was the most important thing for job searching. There's a lot of rejection involved in a job search, and this can be quite demoralizing. If you apply for a job you think you are very suited for and are rejected

life. I liked the actual research, but I didn't enjoy the promotional aspect of the role. I was also trying to think of options where my work might have a more direct positive impact on people's lives and society. However, my main trigger for leaving was less noble—I had just bought a house and was struggling to pay the mortgage on a New Zealand scientist's salary.

How did you go about searching for a job outside of the university setting?

My biggest constraint in searching for another job was that I wanted to remain in New Zealand, and more specifically in Wellington. In hindsight, this constraint worked to my advantage as I had to consider a more diverse range of work options. Initially, I looked at advertised positions for any role that needed modeling or analytical skills. I hoped that I could find something outside the financial/banking sector, but I was willing to consider anything and everything.

I talked to fellow "escapees" from academia, and they all said the same thing—you just have to get your first job and after that it is easy to move to different roles. In the end, my first job came through a recruitment agency. I had read the job description and not even considered it because it was written in what

(or more often, receive no response at all), move on and send out a resume to another company. Eventually, someone will hire you.

Finally, don't underestimate the value of your degree. A graduate degree implies many valuable personality traits, including intelligence, motivation, and self-discipline, as well as writing, teaching, and project management skills. This (plus a willingness to work hard and learn quickly) can make you a contender in many cases where you'd otherwise be considered unqualified. @



appeared to be a foreign language (which I now know is public-sector speak). I also thought they wanted a miracle worker. However, the agency insisted, and so I got a position as an evaluator in the government science-funding agency. My job was to collect information about the benefits arising from government-funded research in order to demonstrate that the money was well spent—and hopefully to secure additional funding for science in future. I was called an evaluator, but it was primarily a social scientist role in which I conducted interviews with scientists across all types of disciplines and also with people who used the research results, such as environmental managers, policymakers, and manufacturers. It wasn't the sort of job I had expected to

get, but I found it really interesting in terms of the topics covered and for broadening my perspective on the world.

Is this the only job (post-academia) that you've had? If not, what else did you do?

I moved from the science-funding agency into several different researcher/statistician roles in other government policy agencies. Over the past 10 years, I have shifted away from the qualitative research methods used in my first job outside oceanography into quantitative statistical analysis. I have worked on a wide range of projects relating to economic development policy, agricultural environmental policy, and criminal justice policy. The common theme across the projects is that I used statistical/data analysis techniques to assess whether government

policies were effective, how they might be improved, and/or whether there were any unintended consequences. For example, I recently worked at the New Zealand Treasury where I used a large government database to measure the impact of different types of criminal sentences on the subsequent employment prospects and re-offending patterns of convicted offenders. This is useful contextual information for judges who wish to understand the impact of their sentencing decisions on people's lives. In a prior project, I undertook an econometric evaluation of the impact of government grants on the subsequent economic growth of businesses. In that study, I used a large business-centric database to match businesses that received a government grant with similar firms that did not (the control group), and compared their economic growth over time. The results showed the types of firms that benefited the most from public funding for research.

What is your current job? What path did you take to get there?

This year I decided to make another change. I left public service to become a consultant. I still work for government agencies undertaking statistical analysis, but being a consultant gives me more flexibility in terms of projects and free time.

What did your oceanographic education (or academic career) give you that is useful in your current job?

I think my education in oceanography prepared me really well for a range of different jobs (though I doubt that was the intent!). The skills that I find most useful relate to data analysis, statistical analysis, computer programming, and writing. Less tangibly, but possibly most important, I think I picked up a commitment to integrity and quality in my work as part of my education.

Is the job satisfying? What aspects of the job do you like best/least?

I am really happy with my work life now. I spend most of my time actually doing

research. The work is interesting, and it is commissioned by people who are interested in using the results to improve government policy. I have found people who work in public service to be just as passionate and committed to improving society as scientists. I have never felt like my work was misused. Having said that, there are many factors that come into play when making final decisions about government policies. It can be sobering for a former scientist like myself to find out how little impact any research evidence has when compared with public perceptions or politicians' views. I have learned to lower my expectations that my work will have a direct impact on people's lives!

Do you have any recommendations for new grads looking for jobs?

My main concern when I left academia was that I was so over-specialized that I was not employable outside oceanography/geosciences. I would recommend that you think of all the skills you developed during your degree that you can apply in completely different roles.

If you are seeking work outside academia, it pays to be open-minded. When I accepted my first job in the science-funding agency, I thought I was going to the dark side. However, I learned a lot from exposure to different world views, particularly those of the people who need to use the research results in order to do their jobs better.

If you are looking for a job outside academia, create a nonacademic version of your CV. People outside of academia are not that interested in a long list of publications and presentations. They won't be able to tell the difference between good journals or bad. They will think you are smart because you have an advanced degree, but you need to be really explicit about your skills. Also, focus on the "softer" skills. Employers like to know that people can work well in a group and aren't weird recluses, so demonstrating you have people skills is important too. ☺

CAREER PROFILES

Who would you profile?

Oceanography needs your help to make this careers column a success. Finding the right subjects is a challenging task, and *Oceanography* needs suggestions about who to profile. Please consult your roots, your Rolodex, or your phone's contacts folder and provide *Oceanography* with information about people you know whose career paths might inspire and inform the next generation. Self-nominations are accepted.

Do you have suggestions?

Please send their contact information to ekappel@geo-prose.com.

<http://tos.org/career-profiles>