# SIfA EMCR Workshop 2015 – Session 3, Panel 2
### by *Simon Murphy & Sarah Leslie*

**Panel 2:** Tanya Hill, David Harrison, Mark Assad, Alain Picard, Sean Farrell, Zdenka Kuncic

## Moderator: Lisa Fogarty

**Tanya** from Melbourne Planetarium, who described her relevant skills as 'providing feedback and critiquing, as well as working in a team and finding value in contributions'.

**David**, Head Engineer at Freelancer, where he has worked since 2009. He was an undergraduate at USyd, did some startups, ran some networking and recruitment consultancies and now finds himself in a managerially orientated role, despite originally being focussed on programming.

**Mark**, performance engineer at Atlassian. He has a computer science PhD. Made the conscious decision to switch to a family friendly career. His key skills are data mining, and presenting to or winning around a closed-minded audience.

**Alain**, from GoCatch! Has a PhD in astronomy from Caltech and spent some time at ESA, Holland. Alain made the switch to computing. As well as having a high level of profiency in programming, Alain describes the importance of having soft skills, such as effective communication, people management and team work.

**Sean,** who has a PhD in high-energy astrophysics from UNSW, did two postdocs in Europe, two at USyd, and then began working as a data scientist for the Dept. of Defence. Six months later he switched to working for Teradata, predominantly in analytics, problem solving, data mining and machine learning. He regularly uses SQL, R and Python.

**Zdenka**, who has a PhD in astronomy and did a 2.5-yr postdoc before having a career break (family). She was a fixed-term undergraduate physics teacher, but is now in the field of biomedical physics where she leads he own programme.


## Q: "What exactly is data mining?"

**Sean:** It's the process of digging through a dataset, e.g. a catalogue, and pulling out interesting things. There's a difference between doing large-scale statistics on the whole sample, and solving the 'needle in a haystack' problem. The challenge is to do better than just eyeballing the data. This may involve machine learning (on clusters), and requires a lot of processing power.

**Alain:** In my experience it's about fighting the noise – something astronomers have much experience of. A hefty challenge is understanding the industry jargon.

**Q: "What attracted you to your fields?"**

**Mark:** I enjoy the competitive challenge of finance, especially high-frequency trading. My advice is to work at the head office of your firm. That's where all the interesting stuff happens.

**Sean:** I wanted a lectureship, but didn't want to teach. I knew I liked problem solving, and didn't actually care if this was in astronomy or not. I was tired of overseas travel (I've lived in six countries in ten years). Since leaving astronomy I've doubled my salary, have job security, and heavily cut back my hours (37-hr week).

**Alain**: Being an academic is like being in a pressure cooker; the outside world is comparatively easy. I always like to say "Caltech is a great place to *have been* at."

**Zdenka:** There are too few jobs in academia, which leads to too much pressure. Medical physics as a profession (i.e. not as an academic) is hard working. It's well paid, but it's demanding. As an academic though, it is aligned with astronomy [implying still long hours, but without high pay].

**David:** There's no momentum at universities. Nothing gets done. They're happy with the status quo. This is completely the opposite to startups, which are fast paced. It is difficult to call it quits on something you're heavily invested in, whether it's a career in astronomy or a startup. But its useful to know that you can get things wrong, and the world won't end. I think it's great to work with people who have had their noses bloodied. They have perspective. They've failed before and are better for it. If you want to enter the commercial world, the question is "What do you want to do when you get there?" (and what risks are you willing to take for it).


**Q: "What do you miss about astronomy?"**

**Alain:** The observing. Life on the mountain and the technical aspects of observing. But not the pressure. You're allowed to change your mind on the things you like.

**Sean:** I miss the intellectual challenge.


**Q: "In your job, what gives you the most satisfaction?"**

**Zdenka:** Learning something new every day.

**Mark:** Proving the nay-sayers wrong.

**Alain:** Applying my own values of doing things the way they should be done. Instilling values of quality and reliability into the next generation.

**David:** Nobody knows what security is. I spend most of my time trying to break stuff, which is fun. I also really like getting to build, and the exploding scale of startups.

**Tanya:** Producing animations that really nail a topic. Finding and presenting "the hook." Leaving academia is not a failure.

**Q: "How many hours do you work a week?"**

**Mark:** Atlassian is the most flexible workplace ever. I work 9-6 most days, but sometimes that's from home. In my team of seven, there are usually 2-3 of us working from home on a typical day.

**David:** Lots of hours, 60+ is standard. I'm always on call, but things would have to go seriously wrong before they need to call me in. I'm the last line of defence. We work hard and play hard.

**Zdenka:** All academics put in a lot of hours.

**Alain:** I'm working half-time, which you can read as "as few hours as I can".

**Sean:** 7.5-h days, contracted. Occasionally we have to work intensely to get a project done, but generally I'd describe my hours as 'relaxing' and 'flexible.'

**Tanya:** 4 days per week, 9-5 hour days. I do put in extra time at home though.