Industrial Advisory Board - 2016 - Minutes

Location: College Court Leicester
Date: 21st September 2016

Attendees:

- Joe Young (Alstom/GE)
- Paul Muston (Musoft)
- Ben Ravilious (Ultimate Web)
- Lee Stott (Microsoft)
- Tom Ledgard (UOL Careers)
- Paul Fitzgerald (UOL Placements)
- Andrew Goetzee (IT Services)
- Heather Stroud (Jadu)
- Abi Harrison (Jadu)
- Aimee Harrisonwilde (UOL Placements)
- Adrian Wooley (Carney Jones)
- Katherine Brewster (FDM)
- Paul Beers (FDM)
- Jas Minhas (Leicestershire Police)
- Andrew Hawkins (Grass Valley)
- Lucia Prroni (Jadu)
- Louis Hampton (UOL Student Rep)
- Leandro (UOL Informatics)
- Roy (UOL Informatics)
- Emilio (UOL Informatics)
- Emmanuelle (UOL Informatics)
- Stephan (UOL Informatics)
- Fiona Holder (Xibis)
- Richard Craggs (UOL Informatics)
- Reiko Heckel (UOL Informatics)
Thank you to everyone that was able to attend to Industrial Advisory Board. I hope that the attendees had a good time. Here are some notes on what we learned and anything that we will do differently based on what we learned.

**Sessions 1 - how we allocate time to our teaching**

I learned that:

- People tended to weight the amount of time they felt should be spent on different areas differently from how we currently do it. Using my rough categorisation we spend 3 times as much time teaching software engineering topics than more foundational of “computer” related ones in the compulsory CS modules. Groups opted for more balance. I suspect this may be because I didn’t highlight the difference between “amount of stuff we hope our students will learn” and “amount of time we need to spend teaching a topic”. I wonder whether we felt that students should learn a balanced amount of theoretical v.s. applied but that in reality it can take a loooong time to teach some people to code so we spend a lot of our teaching on that.

- The group that contained university staff that are familiar with the upcoming changes to our degrees were happy that what people from industry suggested as necessary matched well with what we hope to teach.

- There are a lot of topics that are considered must haves if you ask as few as 10 different employers (e.g. Dev-Ops, Container Management, IT Management). We hopefully didn’t labour the point but it was clear that there is relatively little time to teach what is potentially a huge range of subjects.

- There was a strong suggestion to include more topics or opportunities related to entrepreneurship, networking, commercial awareness, creativity throughout our degree.

- There was general shock at the paucity of teaching we provide on testing. Throughout the day this was discussed as almost on par with coding in importance, yet we teach very little testing, especially in compulsory modules. This is something for us to consider.

- One idea was to provide a broad general curriculum covering a lot of areas in a relatively shallow was and then crash-courses on specific topics. It was mentioned that providers like Coursera could help with this. We mentioned that we provide students with access to Pluralsight which could be used for the same purpose.

- It was highlighted that our own IT services department could be used within teaching as an example of a enterprise within which IT and software is created and used.

**Sessions 2 - Questions of Employability**

We covered a lot of subjects in these discussion, here are some highlights

**Why CS students struggle to get jobs?**

- Oddly, computer science students can come across as less passionate about the discipline than students from other subjects who know something about IT. FDM and other had spotted this. Why aren’t CS students passionate about IT/CS? It was suggested that it’s because the subject is entered because of a belief that it leads to good jobs not for a genuine passion.
CS students are often not aware of the range of roles in the IT industry (e.g. Business Analyst, Tester, Systems Administrator) - could our department or Careers Development service do more to educate them about this?

Employers often list technical skills on job adverts but then evaluate candidates more on soft-skills. Are CS students prepared for recruitment processes based on what they see on job adverts?

**Top advice for new starters**

- **Have a side-project as well as your studies.** It demonstrates to employers your ability to create something and can be used as a vehicle to learn and relate to your studies.

- **Have other interest, volunteer.** Computer Science students are notorious for being narrow in their interests. Having other interest will make life more interesting as well as the often-cited employability benefits.

- **"Be a programmer or be programmed.** There is a theory that in the future those that control the technology will have the power, and those that don't are at risk of being sidelined. Here is your opportunity to join the world’s elite.

- **Take the lid off technology.** Most graduates now will have a good understanding of technology and will be powerful users of it. They also will have knowledge of another discipline (e.g. Physics, History...). To compete you will need to have a deeper understanding of technology and how it works.

- **Be prepared to learn for the rest of your life.** The most important thing that can happen to you at university is that you become a good learner with a passion to learn for the rest of your life. If your current goal is to learn just enough to get you to the end of your degree then it is easy to be overtaken by people once your degree ends.

- **Learn to reflect.** Never in your life will you even be in situations where you are given such clear guidelines on what you are expected to produce and then such clear feedback on what you did well and not so well. Use these to learn to reflect on how you performed and improve for the future. Being able to learn from mistakes and improve is hugely important within university and outside.

- **understand the importance of relationships and people.** A lot of us don't find meeting people and forming relationships the easiest thing to do. However it's a vital skill. University gives you opportunities to meet business people, and to understand how we can help them. Take these opportunities to do this in a gentle way before we have to do this in a scarier employment scenario.

- **Find the part of the course that you enjoy and go for it.** Degrees tend to give you a broad, shallow understanding of a lot of areas. Diving down into one area that really interests you will teach you so much. Employers will appreciate that you have shown a passion and can follow it.

- **Be prepared to fail** If you don’t regularly fail then you aren’t challenging yourself enough. People can get great degrees having failed in a lot of small ways. Be ok with failure, and reflect on what you learned.

**The big challenges**

The following were seen as the new or upcoming things that will play a big part of the industrial world our students will enter:

- Data
- AI
One idea to help students become familiar with this was to ask students to review tech press and present on one of the big challenges that they identify - even if it’s just for awareness for the future.

Session 3 - Research on validation and verification

The big takeaway from this session for me is that there is a lot of agreement in industry with what good quality testing should include:

- accessibility
- regression testing
- usability
- automated functional testing

However there are large areas of verification that are interesting to our academics that were not considered by the industry people there -

- Formal verification that the software does what it ought to.
- Automatic generation of tests.

Actually, I think that for quite a while the two groups maintained different a different understanding of what “test automation” meant (generation v.s. execution of tests). Groups discussed how these we might close this gap for specific projects/companies.

There was also an idea that tools (e.g. IDE plugins, build tools) for functional languages could be improved based on the departments understanding of functional properties.

AOB?

- We discussed how informal or formal mentoring between students and professionals could be beneficial to both. I’ll follow up with individuals about this.