

Industrial Liaison Board, Department of Computing

28th April 2009
5pm
Billiard Room, 58 Prince's Gate
South Kensington Campus

Minutes

Present:

External: Dr Xeno Andriopoulos (Kinitron), Dr Robert Chatley (MetaBroadcast), Dr Krisztian Flautner (ARM Ltd.), Dr Constantine Goulimis (Greycon Ltd.), Mr Simon Holden (Morgan Stanley), Dr David Jeffery (Betfair), Mr Ben Murdoch (Google), Mr Hugh Proudman (IBM), Professor David A. Oxenham (Dstl), Dr Nigel Walker (BT).

Internal: Professor Jeff Magee (Head of Department), Professor Susan Eisenbach (Director of Studies), Mrs Anne O'Neill (Department Operations Manager), Professor Morris Sloman (Deputy Head of Department), Dr Tony Field (Deputy Director of Undergraduate Studies), Dr William Knottenbelt (Industrial Liaison Co-ordinator), Dr Alessio Lomuscio (Deputy Director of Research), Dr Michael Huth (Third Year Co-ordinator), Miss Amy Allinson (Industrial Liaison & Student Support Officer).

Apologies: Mr Patrick Goldsack (Hewlett-Packard Laboratories), Professor Daniel Rueckert (Director of Research, Department of Computing), Professor Berc Rustem (Professor of Computational Methods in Operations Research, Department of Computing), Ms Maria Turner (JPMorgan).

Agenda Item

1. Welcome and Introduction

Professor Jeff Magee welcomed all attendees to the meeting and gave a brief introduction.

2. Membership and Terms of Reference

The Membership and Terms of Reference were presented to the Board as outlined in *Paper 1* and approved.

The following were welcomed to their first meeting: Dr Alessio Lomuscio, Deputy Director of Research, in place of Professor Daniel Rueckert, Director of Research; Mr Hugh Proudman, new representative for IBM; Mr Ben Murdoch, new representative for Google; and Professor David Oxenham, Dstl, who was not able to attend last year's meeting.

3. Minutes of the Last Meeting

The minutes of the last meeting held on 20th May 2008 were approved.

4. Matter Arising

Dr William Knottenbelt gave a presentation on the Corporate Partnership Programme and industry involvement in group projects, both of which were discussed at the last meeting.

(a) Corporate Partnership Programme (CPP)

Dr Knottenbelt confirmed that the Department had officially launched the CPP in January, offering companies who want to recruit our students a 'one-stop-shop' for interaction with the Department. The CPP assists companies with their recruitment by raising their profile among our students and by giving them access to a database of student CVs which Dr Knottenbelt demonstrated in the presentation. In turn students are exposed to a wide range of industry-related opportunities and benefit directly from the academic sponsorship that the CPP attracts. It was reported that at present nine companies are participating in the programme. It was confirmed that there are two levels of membership as follows: Benefactor £5,000 per annum, and Member £1,000 per annum and full details can be found on the Department's website at <https://www.doc.ic.ac.uk/cpp>

It was reported that the Department had been approached by a company seeking to replicate the CPP for multiple universities and companies and include forums to allow companies and students to rate each other.

(b) Industry Involvement in Group Projects

Dr Knottenbelt explained how industry can get involved in student group projects. The Department runs ten-week group projects for both 3rd year undergraduate and MSc students. Students work in groups of 4-6 to tackle a broad piece of software engineering, with an emphasis on good design, integration and testing. Examples of successful group projects run with Betfair were cited. Other successful interactions have also taken place with companies including Trayport, Ubisense and Orange.

5. Strategic Issues

Professor Magee presented to the meeting on strategic issues facing the Department via a SWOT analysis (*Paper 2, attached*).

The presentation included details about the Department's new MSc Programme which will offer several MSc pathways/specialisms. It is hoped this will attract more good applicants and foster a stronger relationship between academics and MSc students with a view to encouraging some to consider pursuing a PhD.

Research was a key area of the presentation that was discussed in further detail. It was noted that the EPSRC research grant proposal form now has a new engagement with industry section and there is a growing pressure for researchers to be able to demonstrate how the research will benefit the UK economy. Professor David Oxenham (Dstl) stated that he believes Research Councils are looking for research that can be shown to be on a pathway to a desirable end outcome and that the impact demonstrated need not necessarily be 'economic' benefit but could be social in nature.

Professor Oxenham questioned why increasing income from industry, for example through consultancy services, had not been included in Professor's Magee's SWOT analysis as an opportunity for the Department. Professor Magee explained that Imperial College permits researchers to offer consultancy services but that this is limited to one day per working week and the income goes directly to the researcher. Research where the College does not have a share in the Intellectual Property Rights cannot be counted in the Department's research volume.

Mr Hugh Proudman (IBM) sought clarification on how the Department is planning to develop its network of potential research partners and how members of the ILB could support this. Mr Proudman suggested setting up a web portal where ILB members and other industry contacts could view current research proposals and ideas where the Department is seeking an industrial partner or industrial input.

It was commented that in terms of research projects the most valuable input from industry is often staff time. Professor Morris Sloman cited the Department's relationship with Hewlett-Packard as an exemplar research relationship, demonstrating true collaboration including co-sponsoring PhDs and jointly writing up papers.

Dr Xeno Andriopoulos (Kinitron) developed the web portal idea further suggesting an e-forum for Industrial Liaison Board (ILB) members to enable discussion of ideas between meetings. A forum could be used to seek ILB member views on, for example, themes of our new Masters courses, development of new or existing modules etc.

Action:

- ***Consider setting up a research web portal to seek engagement from industry in research ideas/proposals***
- ***Consider setting up an e-forum for ILB members to enable interaction and feedback between meetings***

6. Industry Presentations

The following ILB members presented on the key challenges facing their organisations and the skills required to solve them:

- (a) Morgan Stanley – Mr Simon Holden, Managing Director (*Paper 3, attached*)
- (b) IBM – Mr Hugh Proudman, Program Director, Information Management (*Paper 4, attached*)
- (c) Betfair – Dr David Jeffery, Chief Software Architect (*Paper 5, attached*)

Many common themes were covered in the presentations and other ILB members also agreed that they were facing similar challenges despite their different industry sectors/settings.

Key common themes discussed included:

- The importance of fundamentals – all members agreed that graduates need a true understanding of the fundamental principles of computer science, rather than an in-depth knowledge of particular technologies. This empowers students with the ability to find effective solutions to a range of challenging real world problems. The Head of Department stressed that our approach to teaching is focused on fundamental understanding and problem solving skills. This provides a platform from which students can easily adapt to and master new languages and approaches. Dr Jeffrey (Betfair) stressed the importance of understanding computer systems ‘beneath the lid’.
- The importance of ‘soft skills’ – the presentations and discussion all highlighted the need for graduates with good ‘soft skills’. Graduates are working in global organisations, with distributed teams and increased interaction with both internal and external clients. Industry needs graduates who are not just technically excellent but can also offer excellent communication, presentation, negotiation and project management skills, and, also bring a global perspective. Aspects of the curriculum, including the Industrial Placement, are designed to foster these skills; however, it was recognised that some of these skills, such as large scale project management, are challenging to teach.

Mr Proudman’s presentation questioned whether poor performance in the area of ‘soft skills’ was potentially resulting in our students failing to reach the final stages of the IBM recruitment process and this was something that was also raised by the previous IBM ILB representative, Professor Robert Berry, last year. Dr Nigel Walker (BT) explained that in many organisations the graduate recruitment process is imposed from central HR and designed for generic graduate recruitment. This approach is therefore not always suitable for the recruitment of computing graduates where a subtly different skill set is required depending on the roles on offer.

It was agreed that the Department cannot teach these skills alone and that we need to interact with Industry to further develop these skills in our students.

- ‘Brownfield’/legacy software – the widespread use of ‘brownfield’/legacy software was another common theme for many member organisations. Members stressed the importance of managing student’s expectations with regards to legacy software and making it interesting. Mr Holden reported that Industrial Placement students are often surprised by the widespread use of legacy software and the lack of ‘greenfield’ projects and this was also backed up by Mr Proudman’s presentation. Professor Susan Eisenbach reported that students have a ‘re-engineering’ module in their fourth year and that next year all the lectures in this module will be delivered by industry speakers.
- Performance and scalability – was identified as being central to the competitiveness of many member organisations. We need to train engineers who can build systems that that deliver good performance whilst supporting sustained rapid growth. However, it was noted by Dr Jeffrey (Betfair) that an in-depth understanding of scalability was rare.

- Virtualisation - Member organisations are under pressure to consolidate data centres with an eye to reducing total cost of ownership and increasing operational efficiency. It was noted that virtualisation was being widely adopted by members to help in this respect.
- Testing – was identified as being central to the integrity of the operation of many member organisations (particularly those in the financial services industry). The design and implementation of automated testing systems was identified as a particular challenge.
- Agile software engineering – many member organisations expressed a need to reduce time to market in the delivery of new functionality and applications. Agile software engineering techniques were identified as a critical means to achieving this goal.
- The importance of good design skills – it may be worthwhile to investigate a closer relationship between Imperial and the Royal College of Art (RCA) with an eye to synergising the strong technical ability of our students with the creative flair and design skills of RCA students. It was noted that the organisation Design London has been specifically set up for this purpose. It may be worthwhile to trial some group projects in this area.

Action:

- ***Arrange meeting with IBM to discuss current recruitment issues and also consider ways in which we can work with IBM on projects designed to interest more female students in Computing.***
- ***Consider ways to interact with Industry which would further encourage the development of students' 'soft skills'.***

7. Any Other Business

Members asked that we present some career statistics and key determinants regarding student career choice at the next meeting.

8. Close