

## Industrial Liaison Board, Department of Computing

29<sup>th</sup> June 2010  
5pm  
Billiard Room, 58 Prince's Gate  
South Kensington Campus

### Minutes

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#### Present:

External: Dr Xeno Andriopoulos (Kinitron), Mr Mike Butler (Deutsche Bank), Dr Robert Chatley (Develogical), Mr Andrew Eland (Google), Mr Patrick Goldsack (Hewlett-Packard Laboratories), Dr Constantine Goulimis (Greycon Ltd.), Mr Simon Holden (Morgan Stanley), Dr David Jeffery (Betfair), Mr Philip Miller (Formicary), Dr Bill Mitchell (BCS), Mr Michael Onoufriou (IBM), Mr Christophe Tchong (Amadeus), 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 Michael Huth (Third Year Co-ordinator), Miss Amy Allinson (Industrial Liaison & Student Support Officer).

**Apologies:** Dr Krisztian Flautner (ARM Ltd.), Professor David A. Oxenham (Dstl), Mr Hugh Proudman (IBM), Professor Daniel Rueckert (Director of Research, Department of Computing).

### Agenda Item

#### 1. Welcome and Introduction

Professor Jeff Magee welcomed all attendees to the meeting and gave a brief introduction. The Membership and Terms of Reference were presented to the Board as outlined in *Paper 1*. The following were welcomed to their first meeting: Mr Mike Butler (Deutsche Bank), Mr Philip Miller (Formicary), Mr Christophe Tchong (Amadeus), Mr Andrew Eland new representative for Google, Dr Bill Mitchell new representative for the BCS, and Mr Michael Onoufriou representing IBM in place of Mr Hugh Proudman for this meeting.

## 2. Minutes of the Last Meeting

The minutes of the last meeting held on 28<sup>th</sup> April 2009 were approved.

## 3. Matters Arising

Professor Magee provided an update on our new MSc courses and reported that applications for our MSc programmes was over 800 this year so far, which was an increase on last year.

Professor Magee reported that due to the current restructure of Research Groups in the Department we had not yet progressed with the ideas of a research web portal or e-forum for Industrial Liaison Board (ILB) members.

Professor Magee reported that Dr William Knottenbelt and Miss Amy Allinson had a follow up meeting with IBM on the 29<sup>th</sup> June 2009 to discuss recruitment challenges as raised by Mr Hugh Proudman at the last ILB meeting.

**Action: to consider setting up a web portal and/or an ILB e-forum once the Research restructure is complete.**

## 4. Industrial Liaison Update

Dr Knottenbelt provided an update on Industrial Liaison activities over the past year including the following:

*Corporate Partnership Programme (CPP)* – Dr Knottenbelt thanked the Board for their feedback on the CPP at the meeting two years ago and reported that the programme has been a great success with 14 companies now registered at Benefactor level and 11 at Member level. The CPP has raised £34k in new donations to date and the money has been used to directly benefit students in various ways including Prizes, Computing Entrance Scholarships, enabling students to present their work at conferences, and providing equipment for project work. Full details may be found here: <http://www.doc.ic.ac.uk/cpp>

*Applications of Computing in Industry (ACI)* – ACI is a lecture series which enables Corporate Partners to come in and present a technical lecture to our students. The regular lecture slot is included in all student timetables and the lectures are designed to complement studies by showing how theory is applied in practice and by describing interesting technical challenges in industry and how our partner organisations are addressing them. The programme for 2009/10, which included 17 talks, may be found here: [http://www.doc.ic.ac.uk/cpp/aci\\_talks/](http://www.doc.ic.ac.uk/cpp/aci_talks/). The programme covered a wide range of technical areas and included a presentation on Brownfield Software Development by Mr Simon Holden (Morgan Stanley), following on from his presentation at ILB last year. Other organisations represented on the ILB also presented during the series including; ARM, Amadeus, Betfair, Deutsche Bank, Dstl and Google. It is planned that ACI will continue next academic year.

*Group Projects* – Dr Knottenbelt reported that several 3<sup>rd</sup> year and MSc Group Projects had been successfully conducted with industrial partners this year including Amadeus, Betfair, Cinesite and Deutsche Bank. He also reported that this year 2<sup>nd</sup> year group projects (which centre around developing a multiplayer trading game) brought together Google, IBM, Apple and Logica to give

lectures and mentoring on usability and programming using the latest mobile hardware. Students benefited from Nexus One phones donated by Google and iPod Touches on loan from Apple. One group is applying to take their idea to Seedcamp, an event for seedling business ideas (see point 8 on Entrepreneurship).

## **5. Careers Statistics**

Miss Allinson presented graduate destination statistics relating to 2009 graduates of the undergraduate programmes as follows:

- a) Results of an internal survey completed in June 2009
- b) A summary of the results of the national 2009 Destination of Leavers of Higher Education (DLHE) survey conducted by the Imperial Careers Advisory Service on behalf of HEFCE.

## **6. Strategic Issues**

- a) Funding

Professor Magee provided an update on funding. The Department's main source of funding is from the Research Councils and from EPSRC (the Engineering and Physical Sciences Research Council) in particular. He reported that last year the Department was successful in winning two large programme grants, one led by Professor Guang Zhong Yang focusing on the use of pervasive sensing and the performance of athletes for £10m, and the second joint with Queen Mary, University of London (led by Professor Philippa Garder at Imperial), looking at Resource Reasoning and verification of large programmes.

The Department also secured 4 platform grants led by Professor Morris Sloman, Professor Yang, Prof Wayne Luk and Professor Yike Guo. Dr Alessio Lomuscio, Deputy Director of Research, also secured a Leadership Award Fellowship and a career acceleration Fellowship was secured for Dr Sergio Maffies. Professor Magee commented that these Fellowships are particularly welcome as they reduce direct staff costs.

At the last meeting of the Board we reported a likely deficit of £0.5m but ended the financial year with a small surplus largely due to an increase in MSc recruitment and a focus on recruiting students from overseas.

The recently published Wakeham Report on the full economic costing of research in UK Higher Education Institutions (HEIs) called for efficiency savings of 5% for the next three years.

Professor Magee reported that most research funding for next year had already been secured but noted that the Research Councils are in the process of re-indexing existing grants.

b) Research Structure

Professor Magee reported on the importance of presenting our research to the outside world and a review of our research structure has therefore been carried out. The result is a structure based around research 'themes' which will further encourage inter-disciplinary working. He commented that in most cases the themes look like the original research sections, however there is a new emphasis on the research groups that constitute these themes and that this gives a both better showcase of our research and a better way of finding out the research in which academics are engaged. The Department's web pages are currently being updated to reflect the new group and theme structure.

c) Doctoral Training

There is a school of thought that suggests UK PhD quality does not match the quality of international PhDs in particular those in Europe and the US and that UK PhD courses are shorter than they should be. It is proposed that PhD students benefit from a greater element of doctoral training and from being part of a cohort. Centres for Doctoral Training (CDTs) funded by the EPSRC aim to address this.

The EPSRC has recently put out a call for two new Centres for Doctoral Training in Information and Communications Technology and Imperial has been invited to bid alongside 9 other HEIs. The centres will attract funding of £2.2m over five years from EPSRC which will be matched (primarily through doctoral training grants). Professor Magee reported that the Department is planning on making a joint bid as a major partner with UCL who were very successful in the last call for CDTs. The draft 'Register of Intention to Submit' document was circulated to Board members and members were asked for their feedback. The deadline for submission to EPSRC is 14<sup>th</sup> July 2010. The deadline for the final proposal, which will include letters of support, is 24<sup>th</sup> August 2010.

Professor Sloman went on to further explain the initial thinking behind our proposal including; the intention that most students entering the CDT will have completed a Masters degree, in line with College policy for PhD admission, that cohort size would be minimum of 10 students, and that students would be strongly encouraged to undertake placements in industry for which industry buy-in would be required.

Dr Nigel Walker (BT) questioned where the PhD quality argument had come from and Professor Magee responded that numerous studies had revealed this to be an issue but that it may be more true in physical and natural sciences where time in labs is considered too short. Dr Walker agreed that UK PhDs may not in all cases allow a student to broaden their expertise in areas they should know and that continental students, for example, have more time to absorb a sense of perspective in their field.

The draft proposal cites placements in industry in the 2<sup>nd</sup> or 3<sup>rd</sup> year of study, however, some members of the group suggested thought be given to earlier placements to inform the direction of the research, to give supervisors the chance to provide feedback early and to enable close relationships to be forged from the outset.

Dr Bill Mitchell (BCS) talked about Microsoft as an example and pledged to send in a letter of support after the meeting.

**Action:**

- ***Members to feedback on the proposal and provide letters of support where appropriate.***
- ***Circulate final bid document to ILB members***

## **7. Industry Presentations**

The following ILB members presented on 'important technological trends and developments: ideas for joint research projects and teaching innovation':

a) Google – Mr Andrew Eland, Software Engineer

Mr Eland highlighted some key issues including the use of data centres as the main unit of computation, that failure is a default case, and that data belongs to people. The latter point has numerous implications with developers needing to be increasingly aware of the social consequences of the products they build and the legal and contractual context that surrounds this – it was pointed out that this is an applied soft skill that our graduates will be required to develop and something we should give consideration to when preparing our students for employment.

b) Amadeus – Mr Christophe Tcheng, Director, Altea Departure Control

Mr Tcheng highlighted two keys themes in his presentation:

- What is the next generation database?
- General Purpose GPUs (GPGPUs)

Mr Holden questioned whether compute is increasing in the travel industry and Mr Tcheng responded by saying that computation is growing by 25% per year. He then commented on the 'speed and performance versus consistency' debate and said that the requirements are different at different stages in interaction with the user – at Amadeus they are structured around product areas to address this.

c) Develogical – Dr Robert Chatley, Director and Principal Consultant

Dr Chatley talked about how development cycles have shortened and that agile and lean methods are now being used to deploy products more quickly. Examples such as Flickr and U-Switch were presented to illustrate this. He posed a question to the Board about whether it will be possible to build a system that adapts as to whether users like it or not.

Dr Chatley then went on to suggest that functional programming languages, including Haskell, Scala and Clojure, are being more widely used and that he is seeing less of the dynamic languages such as Ruby and Python which have problems with compiling.

The importance of testing, addressed in Mr Holden's industry presentation last year, again came up. Dr Chatley suggested that this skill could be developed through online lab exercises.

The discussion returned to deployment. Mr Mike Butler (Deutsche Bank) commented that some DB groups have automated deployment whilst others may take up to 36 hours to deployment and referred to the 80:20 rule. It was noted that regulators, and

the need for an audit trail, constrain time to market in many industries. Board members agreed there was some wastage from rapid deployment. Mr Philip Miller (Formicary) remarked that in some cases one can end up stuck in prototype and that the requirements phase and the need for proper architecture at the start is very important.

## **8. Stimulating Entrepreneurship**

Dr Knottenbelt presented to the group on initial discussions with venture capitalist Mr Saul Klein regarding how we stimulate and support entrepreneurship amongst our students. The meeting had resulted from an article Mr Klein had written in the Financial Times which suggested that Imperial has the potential to be the “Stanford of Europe” in terms of entrepreneurship since it has the technical expertise, ready access to top designers (e.g. via the RCA), and is based in close proximity to several venture capital firms, yet this is not an area in which we excel. Approximately 80% of Imperial investments are in life sciences-based areas and only 20% in technology.

Dr Knottenbelt presented some possible options for ways to encourage and support our students in creating innovative new businesses including; a course or lecture series on entrepreneurship given by venture capitalists, hosting and sponsorship of ‘Seedcamp’ style entrepreneurship events, funding ‘risky’ proof of concepts and incubator space.

The Board seemed in favour of some form of entrepreneurship lectures, mentors and business design competitions. Board members questioned how many students want to be entrepreneurs and is there a worry they will drop out? It was suggested that further work is carried out to assess the need and type of support sought, for example by asking entrepreneurial students what would be most helpful. Dr Xeno Andriopoulos talked about the importance of multi-skilled teams and suggested seeking feedback from those who have both succeeded and failed in this area. Dr Robert Chatley highlighted the type of support required may be outside our immediate area of expertise, e.g. access to lawyers and accountants.

### **Action:**

- ***Members to give Dr Knottenbelt any further feedback regarding this area.***
- ***Dr Knottenbelt to set up a follow-up meeting with Mr Klein to discuss ideas further.***

## **9. Close**

The meeting closed at 7pm.