The Ring

Ring News

Cambridge Ring Model Becomes Official Government Policy

The Government has endorsed the Ring as the model for the rest of the country. Not only is this a great compliment to the Ring but also a good reason to work harder to make sure the Ring succeeds and fulfils its potential to make a difference to members, their companies and the Lab.

The 2003 Lambert Review on Business University interaction mentioned the Ring as a role model for departmental graduate associations (Recommendation 3.3). The Government recently published their response to the Lambert Review (http://www.hm-treasury.gov.uk/ spending_review/spend_sr04/associated_ documents/spending_sr04_science.cfm).

On page 169 the Government says, at para C.19,

"The Government support this recommendation. Departments that regularly interact with their alumni are able to develop more leads for possible business-university collaborations. Not only can alumni bring and effectively articulate business demand to departments and the institution as a whole, but more developed alumni interaction would also bring wider benefits to the alumnus and the HEI concerned."

The government, therefore, correctly holds the view that graduates can both help each other and help the department. We are delighted to receive this support and acknowledgement but realise that we have to work harder and smarter to ensure the Ring does realise its potential. Growing the membership is the only test of whether the Ring is doing a good job. That in turn means that the Ring has to be useful to members. That requires members to be helpful to each other. So please get your friends to join.

We have realised that other key factors in the Ring's future success include creating more of a student social life in the Lab, so that students build broader personal networks before graduation, and then ensuring students get good first jobs in industry through the Lab's Supporters' Club. We're hoping that more student team projects, more student parties and more student summer work placements all become future Government policy.

Ring Careers Committee

The Careers Committee, set up to provide assistance to members in helping them achieve or enhance their career potential, is looking for new

The Ring Issue VIII January 2005
The Newsletter of the University of Cambridge Computer Laboratory Graduate Association
www.camring.ucam.org

1

members. If you are interested in joining the committee please contact the Committee Chairman, Peter Cowley at peter.cowley@camdata.co.uk.

Notices

NOTICE
of Annual General Meeting of
Cambridge Computer Lab Ring

Thursday 27th January 2005
In LT 2, William Gates Building
At 4.30 pm

AGENDA
1. Minutes of 2004 AGM
2. Chairman's Report
3. To receive and approve the audited financial statements
4. Council Membership
   * Retirements of appointed members
   * Nominations for Council Membership
   * Elections to the Council
5. Re-appointment of Auditors
6. Any other business

Leaders sought for seats on the Ring Governing Council
Members seeking a leadership role in the Association are invited to stand for election to the 3 places on the Ring Governing Council which will become vacant at the forthcoming AGM.

Candidates for election may wish to submit their names to the Governing Council for consideration as recommended candidates. Please include a statement to support your candidacy. Applications for recommended candidate places must be received by the Director General by 10 January 2005 to allow consideration of the applications by the Council and subsequent circulation of the details of the recommended candidates to the membership.

Alternatively, candidates for election may be proposed and seconded at the AGM itself.

All candidates, recommended and otherwise, are then voted on at the AGM which this year takes place on 27 January 2005 in Cambridge.

Elected Council Members serve a 3 year term.

Programme for the Lab Update and Annual Dinner – Monday March 14th 2005. If you would like to attend please complete and return the enclosed booking form.

6.00 pm Lab Update – Computer Laboratory

7.15 pm Reception – The Hall, Jesus College
8.00 pm Dinner – The Hall, Jesus College

For further information please contact Jan Samols, whose address, telephone number and email address are on the enclosed booking form. Tickets will be sent out in early March.

Ring Events

One of our priorities is to set a varied and interesting events programme. This has been augmented by the launch of the London Ringlet Committee. They organised a highly successful event in October (*see below*) and are holding a Xmas drinks party. So, if you read this before December 21st, it's still not too late to book your ticket. Details of the event and an invitation form can be found on the Ring website (www.camring.ucam.org).

RING MEMBERS AT THE JACK LANG LONDON TALK

13 October 2004
Report by Stephen Allott,
Member, Governing Council,
Cambridge Computer Lab Ring

The crowd swelled to about 40 people at Oyster's office. After Jack Lang's talk we stayed on until 9.30pm for drinks. Chris Morgan and Alastair Gourlay chatted to me about organising a London Ringlet Xmas Party. This was a great idea and it might well have happened by the time you read this. Kamiar Sehat from chip designers, ARC, was there. I had seen him at the June drinks party. Ring Council member David Colver talked to fellow Council member Peter Cowley who had come down from Cambridge for the meeting.

The Ring Issue VIII January 2005
The Newsletter of the University of Cambridge Computer Laboratory Graduate Association
www.camring.ucam.org

2

Annette Haworth from Reading University asked Jack Lang a question during the Q&A session about Cambridge University's policy on whether academics can own their own IPR. Reading is going through a similar process to Cambridge in that the university is trying to transfer IPR in research from the faculty to the university itself. This has, rightly in my view, met huge resistance in Cambridge. The current position is that the Cornish Report recommended that faculty own their own copyright whilst for patents, faculty have the option to place research in the public domain and if they elect not to, the university has the option to take ownership subject to an equitable share for the faculty member concerned. This is a more elegant solution than it might appear for it allows the university to have different policies in different sectors e.g. computing and pharmaceuticals. What has emerged very clearly from my recent research is that the optimal model for technology transfer varies substantially between sectors. What works in pharmaceuticals doesn't necessarily fit computing and this is confirmed by researchers Cohen & Walsh. Pharmaceuticals appear to be an exception yet have, wrongly in my view, provided the model for British university tech transfer. Jack Lang also mentioned Professor Ross Anderson's website about the Campaign for Cambridge Freedoms. Annette also talked to Peter Radford from LogicaCMG. Peter told me that his workload continued to grow. Nice to see them doing well.

Jon Pretty had come up from Basingstoke for the event. Having graduated last year, he has founded his own consultancy and has plenty of work already. He would welcome more. Peter Ferne, like Jon a Trinity graduate, has also just founded a new company. He has launched several before and we wish him well. Peter is thinking of organising a Ring drinks in Bristol in the near future. Akira Nakamura from Tokyo came up to talk to me and I thought "he has come a really long way to be at this event." Back in March, he had come over from Tokyo especially for the Ring Annual Dinner. Akira however is

studying in Cambridge for a few months and had only travelled from there. Samir Feroze had however come over from Pakistan to attend the Ring event and visit customers. Samir has his own offshore development business and told me he had signed 2 new customer contracts that morning. Well done! Glen Slade's business, StegoStik, is also prospering. Back in the summer, he had just launched his new product and activity is picking up. Mark Grundland's business Roleplay Technologies, has serious customer interest. Mark finished his PhD in the Lab last summer and has now moved to London to develop the online dialogue business. Richard Mason, also a Council member, is launching a new consultancy business from his base in Cambridge having finished his MBA at the Judge. We wish him well. Richard is also running the Ring Mentor Scheme and he told me it has got off to a good start. Rend Shakir from Cambridge Matrix was there and very upbeat. Chris Oswald's company, Equisys, has launched a new document generation business and he was positive about current levels of business. It was also good to see Justin Wise. Justin is about to start another company.

That's a lot of entrepreneurs! I also talked to Annette Clark who is doing risk analysis at CSFB. Annette was talking to Richard Tandoh who has just taken a pre-sales job in the Thames Valley. Council member Lorenzo Wood has just re-organised Oyster into 3 strategic business units. Lorenzo is heading the strategic consultancy side. I hardly got a chance to talk to Matt Wiseman who organised the whole evening really well.

I hope to see you at the next event.

The Ring Issue VIII January 2005
The Newsletter of the University of Cambridge Computer Laboratory Graduate Association
www.camring.ucam.org

3

Event Calendar 2005

January 27th 2005
Time: 16:30
Venue: Cambridge
†**AGM**
Time: 17:00
"Opportunities and issues for British ICT/Telecom companies in China"
Speaker: Ting Zhang, Managing Director, China Business Solutions Ltd

February 2005 Date TBA
Venue: Cambridge
Speaker: Craig Tillotson, Director of Strategy, Vodafone UK

March 14th 2005
*Laboratory Update
*Annual Dinner, Jesus College

April 2005 Date TBA
Venue: Cambridge
Hall of Fame profile
Speaker: John Brimacombe, founder of nGame

May 17th 2005
Time: 16:15
Venue: Cambridge
"Computer Assisted Radiology and Surgery"
Speaker: Professor Heinz Lemke, Technical University Berlin, Computer Graphics and Computer Assisted Medicine

June 2005
London Drinks Party

* Booking form enclosed with this newsletter
† Notice of the AGM can be found on page 2

Ring Interview

The Ring interviewed Dr Nicko van Someren at the Cambridge headquarters of nCipher, the cryptographic security solutions company. Nicko is co-founder and Chief Technology Officer. nCipher currently employs around 120 people and also has offices in Hamburg, Boston, Seattle, Washington and Tokyo.

It is not by accident that Nicko van Someren has become a very successful entrepreneur. Entrepreneurship is in his genes. Nicko's father, whose company Aleph One Ltd sells biofeedback instruments, is his role model.

Nicko grew up outside Cambridge and had an early fascination with all things mathematical. At 11 he taught himself to program and spent many hours in the computer shop in Cambridge. You could say he became an entrepreneur at 13. It was in the early 1980s, when he and his elder brother Alex walked into Acorn Computers and announced that they wanted to write games for them. Acorn said yes, but there was a problem; neither brother had a computer. This Acorn promptly provided. Nicko and Alex ported a program, whose source was from the pages of a computer magazine, to work on an Acorn Atom, saved it onto a cassette tape and took it round to Acorn the next day. From here, the van Someren brothers were given holiday jobs at Acorn and received a BBC Micro Computer as payment – in 1981 that was a hefty wage for a summer job. And so from little acorns mighty oaks grow.

When Nicko left school he went to work for Capricorn Consulting, his brother's company, and then came up to Cambridge. He started reading Maths, switched to Computer Science in his 2nd year and graduated in 1989 with a first. After a period working on hypertext technology at Perihelion hardware and Atari Research Centre, followed by a four month internship at Xerox's Cambridge Parc, Nicko returned to the Computer Lab to read for a PhD under the supervision of the late Neil Wiseman. (Nicko was Dr Wiseman's 49th successful PhD student).

The Ring Issue VIII January 2005
The Newsletter of the University of Cambridge Computer Laboratory Graduate Association
www.camring.ucam.org

4

While at the Lab, Nicko was side tracked by friends to design Ethernet controller cards for the Acorn Archimedes computer. From here he built networking software and then moved on to more exotic FTP programs. As the network card business grew Nicko, along with his brother and a couple of other friends, founded ANT Ltd in 1992 and started developing other networking hardware and software. Then, after he took on one of his undergraduate supervisees to write email clients and upon finishing his PhD, Nicko then started working full time for ANT and decided to write a web browser. Not long after, ANT was approached by Oracle to license their browser technology. This was to prove instrumental in getting Nicko where he is today as Oracle asked for security to be added to the browser in the form of the SSL protocol. When it came to implementing SSL for the web browser, Nicko saw that there was also a market for other cryptographic security solutions.

Cryptography was not something new to Nicko van Someren. He became fascinated by the subject back in the late 1970s when, at 12, he read an article in the August 1979 edition of Scientific American – "The Mathematics of Public Key Cryptography" by Martin Hellman. This ignited the flames out of which nCipher rose.

After a chance meeting with a VC investor at a dinner in the US in 1995, Nicko and his brother Alex researched the market for cryptographic solutions, culminating in a visit to Terence Matthews in Ottawa where a deal was struck to invest £1 million in a start up venture. And so, nCipher was founded in the summer of 1996. The rest, as they say, is history.

With entrepreneurial blood evidently flowing through his veins, has Nicko felt the same pressures and crises suffered by others who start their own business? Of course, though Nicko has been very fortunate in having his brother Alex as his business partner. Working as a team has been one of the secrets of their success; they both have different skills and a clear instinctive understanding of the boundaries within which their roles lie.

According to Nicko, the most difficult problems occur when a company begins to grow. That's when personnel and management issues come to the fore. Nicko feels that, at the start, things are simpler. Everyone who works at an early stage company has to be both self motivated and a self starter. The problems start as a company grows to around 20 people; at this stage it ceases to be friends all working together. There are more layers of management and managers have to get to grips with the task of delegation. This can prove difficult if you have exacting standards and fear others won't do as good a job as you would yourself. As Nicko comments, you must be willing to let go. As the company grows further other issues raise their head. Sales, marketing and PR need to be brought into the picture. You have good technology, you know why it's good, however, there's not much mileage in that if others – your potential customers – understand neither your product nor its value. Even Nicko admits to having had a healthy cynicism of marketing and PR at the start. However, he is adamant that, no matter how good a product you have, it's other people who need to be convinced.

Having money from VCs was vital to fund sales and marketing efforts, but it is the business management advice for which Nicko is most grateful. While he may have lost rather more control of the company (in terms of equity) than he wanted, he has benefited enormously from the advice he has received and he believes the business is much more valuable now than it would have been without VC investment. However, Nicko issues a note of caution; VCs take shares and give money, but you should make sure you get more than just money in return! You should get advice and make good business contacts. It is this that will help you secure a solid market presence. Also, when you're going in search of VC funding, interview them as much as they interview you.

So, if Nicko had to do it all again, would he do it the same way? With hindsight he and his brother might have held a stronger line negotiating with the VCs and got the investment on better terms. However, he admits that, in the long term, the equity issue is quite minor compared with the success of the company as a whole.

And what next? Nicko has lots of ideas and the birth of another start-up looks an odds-

The Ring Issue VIII January 2005
The Newsletter of the University of Cambridge Computer Laboratory Graduate Association
www.camring.ucam.org

5

on favourite, though not necessarily any time soon. One thing is a dead cert though and that's that Nicko van Someren can't get out of technology; he's addicted.

Hall of Fame Profile

Questionmark

In the latest in the series of articles profiling companies founded by Computer Lab graduates, 'The Ring' was delighted to talk to John Kleeman founder of Questionmark. John is a graduate of Trinity.

Questionmark (www.questionmark.com) software makes it easy for educators and trainers to write, administer and report on assessments, tests, exams and surveys using PCs, LANs, the Internet and intranets.

TR: John, can you run me through your career up to the point of founding Questionmark?

JK: After leaving Cambridge, I joined Scicon for about 5 years, which was a large London software house in a similar space to where companies like Logica are now. The main area I worked in was air traffic control training, where we developed an innovative software simulator to train air traffic controllers and their military equivalents. We sought to replace very expensive high fidelity radar simulators with cheaper microcomputer based training systems. It was great being involved with a strong team in developing a product from the ground up, and I also got involved in sales and marketing which was an excellent learning experience.

TR: Tell me about the creation of Questionmark? What gave you the idea?

JK: While working on air traffic control training, one of our customers asked us if we knew of any software for delivering tests and exams on computer, so they could supplement their radar training with questions on procedures. We looked around for them and couldn't see

anything. This stuck in my mind and when a year or two later I left Scicon, went travelling for a while and decided to set up on my own, I followed through with the idea.

Essentially I did some informal market research, discovered that there was a gap in the market for an easy to use system for creating tests and exams that ordinary teachers and trainers could use, and sat down in my back bedroom to write it (in Modula-2 in DOS).

TR: How was the business model of the company developed?

JK: Slowly! My first thought was to get someone else to publish the software, but it soon became apparent that this would get me peanuts. So I set up Questionmark in 1988 and initially I wrote the software, did all the sales and marketing and packaged up the orders to send out. The program sold at £98, and although we got lots of blue chip customers (Barclays and Lloyds were two of our early customers), it took a while to realize that prices needed to be raised substantially.

Over the years, the key dynamic we have learned and are still refining is to listen to what our customers want and provide it. Questionmark (www.questionmark.com) has up to 2000 customers in the academic and corporate worlds, and we seek to provide the best quality assessment software that we can for them. From a business perspective, a key step was to set up a software support plan, whereby our customers pay for support and regular updates, and this evens out the revenue flow for us and makes our revenues more predictable.

TR: Can you describe some of the obstacles you have encountered along the way? How were these overcome?

JK: In the early days, the biggest problem was getting customers to know about us. The launch of the business was followed by a long postal strike in 1988, and I remember hand delivering some sales letters around the City of London. The business was greatly helped by

The Ring Issue VIII January 2005
The Newsletter of the University of Cambridge Computer Laboratory Graduate Association
www.camring.ucam.org

6

some positive reviews in some of the computer press, especially Byte and PC User.

A continual challenge is technological change. Questionmark started off with DOS, moved onto Windows and then onto the Internet, and we continually face technological change. One of our biggest threats is technological change that turns the dynamics of our business upside down. I guess the way we've overcome these is to combine open minds with scepticism – don't follow every trend that gets hyped, but have an open mind to new ideas.

TR: What have been the key factors in bringing Questionmark to the level it is at today?

JK: Although the business grew steadily during the 90s, the key break point was when the Internet allowed computer assessment at a distance to take off. Prior to the Internet, the most common way to assess at a distance was to send out tests by post on floppy disk or CD, and get the answers back by floppy disk. Lots of people did this and a few used WANs, but it involved lots of hassle. The advantage of having a central web server that can be updated easily and which allows people to answer assessments online makes the whole process of assessing at a distance much more practical. We brought out the first commercial solution for internet testing in 1995, and our Questionmark Perception product brought out in 1998 really made the business shoot up.

The other key factor was joining up with our American office, initially our distributor, but we are now a transatlantic company and our CEO (Eric Shepherd) is based there. The business has become more professional by adopting US attitudes and the US market is 60% of our revenues.

But the real key factor has been people – customers who have taken our software on with enthusiasm, told us how to make it better and enthused about it to others; and lots of capable colleagues have grown the company to where it is now: some very smart developers,

effective and insightful sales and marketing people, and a dedicated and professional support team.

TR: What are Questionmark's plans for the future?

JK: Questionmark's vision is that the cornerstone of successful education, training and certification is the effective use of assessments. The 21st century offers a real opportunity to use technology to make assessments more widely available and more successful for those involved in the process. In a world where you cannot know everything, assessments will be used to guide people to powerful learning experiences, reduce learning curves, confirm skills, knowledge and attitudes, and motivate by providing a sense of achievement. Questionmark aims to be the world's leading organization in developing, supplying and supporting an assessment platform, software, systems and services for computerizing education and training related assessments.

TR: If you could pin it down to just one thing, what is the most important thing that you have learned about business?

JK: The most important thing is to recruit the best people and give them the atmosphere to achieve great things.

Schools Visit Programme: Spreading the word

Tim King (CC BA76 PhD80)

It's one of the aims of the Ring to try and get the highest standard of applicant to the Lab regardless of where in the country he or she may be studying. To this end I recently gave a talk at the Bryn Celynnog Comprehensive School, Taff near Pontypridd in South Wales. This is a school from one of the less affluent parts of the UK and although it normally manages to send one or two students a year to Cambridge no-one has ever applied to study Computer Science before. I thought I might have an attempt at changing this. The

The Ring Issue VIII January 2005
The Newsletter of the University of Cambridge Computer Laboratory Graduate Association
www.camring.ucam.org

7

headmaster was very supportive and arranged for students who were excelling at Maths throughout the school to come and hear me speak – this ended up as around 25 kids in total, ranging in ages from 14 to 18.

I had previously downloaded the potted talk created by Neil Dodgson from the Ring website and modified it for my needs. I actually took along a data projector as the school only had one and it was locked down in another room – if you are going to give the talk you'll need to determine what AV aids your target school has.

I had added a single page about myself at the start by way of an introduction and this was useful to explain who I was, what I had done and why I was there (I know the headmaster socially). The talk then led me to the description about Computer Science which I used pretty much as it was, but I did change it to emphasise yet again that CS is not programming.

The talk has an example of a first year question, the use of binary chop as a search mechanism, and I took along an old telephone book as a prop. You can open the telephone directory in the middle, determining which half the target search is in and then halving that half, and so on. This seemed to go down well as a way of seeing an algorithm in action, so to speak.

The example questions for third year students shows examples of 3D modelling, and that was a chance to talk about modern film techniques. I explained to the students the difference between Toy Story (all simple shapes and very few textures) and Shrek 2 (real hair that moved, each hair modelled independently) and the CPU power needed – HP's 1000-computer rendering farm.

After Neil's bit about what are good universities for CS I then added a page about the Lab's Hall of Fame. This went down well among the kids there who had programmed – they were writing in C++ and hadn't realised that someone (Bjarne Stroustrup) had designed it, let alone that he did it at the Lab. Other

names like Steve Bourne I suspect went over their heads.

I went rather quickly over the bit about different options as I didn't really understand all the nuances myself, and I suspect this changes in detail year by year anyway.

Questions at the end showed they hadn't all been asleep – questions ranged from "Does it matter that I have never programmed?" (Answer: No) to "Is it a problem if I can program? (Answer: No but be prepared to learn other languages).

Total time for the talk took about 40 minutes, plus two hours or so preparation that can be used again. Not a large investment of one's time and who knows, maybe we'll have more Welsh students at the Lab in future years.

If you have visited your local school please tell the Ring office about it.

Laboratory Research

Looking back and looking forward – research on natural language and information processing (NLIP)

Karen Spärck Jones

I have always been a researcher, so it's nice to see that ideas that were new when I began nearly fifty years ago are coming back, after a long period in the wilderness, looking better than ever. It's also nice to find that the area in which I first worked, which many thought important for computing then but got pushed off into the applications boondocks, is also coming back to centre stage.

I got into computing by accident, after a degree in history and a year doing philosophy. Roger Needham introduced me to the Cambridge Language Research Unit, where Margaret Masterman was leading work on machine translation and information retrieval. This was when people

The Ring Issue VIII January 2005
The Newsletter of the University of Cambridge Computer Laboratory Graduate Association
www.camring.ucam.org

8

believed that automatic text processing was needed as a support tool for scientific and technical progress, and were trying to do this completely new thing using the very limited machines (EDSAC 2, early IBM) that were then around.

The CLRU believed that a semantic classification, or thesaurus, was essential for text processing for translation or retrieval: words fall into concept classes, and classes that recur in text help you to select word senses for translation or to match different words for the same concept in retrieval. Existing manual classifications didn't work very well so we wanted to build better ones, ideally, given the effort required, automatically; our argument was that if you could use a classification to help you sort out the way words behave in text, you could work the other way round and build classes out of the way words tend to co-occur in text.

The suggestion that you can exploit word statistics to tell you, indirectly, about meaning, is quite general, and has many potential uses: frequent words or classes in a text can signal concepts that are important for summarising. Computing statistics is also something that machines are good at.

I found that I could get some nice thesaurus classes, applying grouping techniques that Roger had developed. But there were problems about going further: testing a thesaurus for translation needed a lot of apparatus that wasn't there. Using a thesaurus to help word matching in document retrieval was much simpler, and retrieval was a practical task that people wanted automated; so I began to concentrate on that in the 60s.

But it turned out that it was much harder to get a retrieval thesaurus to perform better than simple direct word matching. Trying to explain why showed that you have to pay attention to how frequently words (or classes) occur in a document. Even if query term A matches document term A or its class mate B, A or B may not matter much for the document, perhaps because they occur only once or because they occur in every document.

Realising that you can weight search terms on a statistical basis, using a number of data sources, turned out to be a real winner. A particular weighting idea I published in 1972 was picked up 25 years later for AltaVista, the first serious Web engine, nicely illustrating how long it can take for an idea to reach the operational world even in a fast moving area like computing. I did some of the work on term weighting in collaboration with Stephen Robertson, beginning research in the 70s which combined his theory and my experiments and led to one of today's main approaches to text retrieval.

One of the reasons statistical approaches were not picked up more quickly was that libraries were old fashioned and computer science people thought that NLIP was nothing to do with them, or perhaps only if it was AI. This was rather discouraging. At the same time, the research community engaged with computational linguistics and language processing was growing within AI, and with more know-how and confidence people began to work on natural language front ends to databases or expert systems that would be helpful for 'ordinary' users. These front ends would need fuller language interpretation and generation than retrieval based on term sets did; but they would be much less challenging than translation through being limited to a well-defined small domain.

I thought it would be interesting to get into this too, not only for its own sake but because I thought one ought to aim for integrated information inquiry systems where the user's single query could invoke multiple types of process responding to a range of available resources: give the user something from a database if you can, but also offer documents if you can.

Interfaces like this have to be interactive because worthwhile inquiry is a multi-step negotiation, not a single input/output operation. So research

The Ring Issue VIII January 2005
The Newsletter of the University of Cambridge Computer Laboratory Graduate Association
www.camring.ucam.org

9

on inquiry involves work on managing dialogue, modelling the user, hanging in there when it's not clear what's going on, and so forth. It's turned out in practice that it's far harder to build effective language-based interfaces than you might expect, because users step outside the domain boundaries so easily. You need to engineer the whole to keep the user under control, so you might as well do query-by-example for database access, though there are application contexts where natural language is appropriate but where you may be able to rely on the user learning to live within the system's limits: simple speech-driven systems for checking or booking services are like this.

I found thinking about information inquiry as a larger and richer area covering a range of more specific activities very interesting, so I had several projects on different lines in the 80s, trying to make database front ends more powerful, thinking about modelling the user and also the system as agents with beliefs, exploring ways of applying the language analysis techniques used for database access to get more selective text retrieval queries. It was also obvious that one of the things you would like to be able to do in the retrieval context is have the system give you summaries of the retrieved documents. There often aren't any already, and you might also like one tailored to your query topic.

NLIP got very exciting in the 90s. One important thing was TREC - the Text REtrieval Conferences, a long-term evaluation programme run from NIST designed to test retrieval systems. It has created a splendid community, pushed outwards from classical document retrieval to things like question answering, and got a lot of good results. Naturally, I like the fact that it has clearly shown how well you can do with statistical methods. Steve Robertson has pushed further along the line we began earlier, to very good effect, and you can apply the same approach to speech retrieval, say from newscast, even if the transcription isn't perfect. Steve Young and Phil Woodland from Engineering and I had fun with this.

TREC was a response to the masses of full text coming on stream, and the Web has been a wonderful sandpit for people coming from computing to work on words so as to get information out of stuff. There's no way you can do deep language understanding, and the user's always going to be involved in interpreting and assessing what they get. When there's a lot of data it's easier to see the patterns that statistically-based selection needs. Because statistical methods are quite general you can apply them to all sorts of things that involve language in some form or other, even if it's not plain running text; so you can exploit all the varied material from invoices to email that a company or enterprise has in order to help it match information with people. There's a lot of interest currently in so-called Language Modelling, as a very general probabilistic approach to doing NLIP things. People are trying it out everywhere, even for getting headline summaries for full documents.

Using statistics for summarising goes back to HP Luhn in 1958. Summarising, condensing long documents to get short ones conveying the significant content of the original, is a hard task. Luhn's statistical summaries, extracting sentences that contained prominent words, were not very good. It seems natural to assume that proper summarising is going to need not only real sentence analysis, but also something that is very tricky to define and capture, namely large-scale discourse structure, In a paper you may have an argument with points and counterpoints, or a description with general statements and elaborations. Structure like this matters for summarising, but it's hard to identify and make explicit. So the challenge with summarising is whether you can get enough of it, implicitly, by looking at surface word patterns.

The other important thing in the 90s has been that language processing has got better, with better grammars, dictionaries, analysers and generators. There's a lot of pressure for applications that, in the same way as summarising,

The Ring Issue VIII January 2005
The Newsletter of the University of Cambridge Computer Laboratory Graduate Association
www.camring.ucam.org

10

can pull information plums out of vast heavy puddings. The systems for information extraction and question answering that are now being built do use proper language processing, but what's interesting about them is that they often combine symbolic and statistical procedures and get better performance this way than with either alone. There's at least one real-time operational summarising system that works this way. But there's also a problem as we learn to build systems for more complex NLIP tasks. The outputs are for people in their particular contexts, so discovering whether one output is better than another is really tough. Evaluation means demonstrating that one summary paragraph is better than another; or that `Agra' is a better answer than `Atlantic City' to the question `Where is the Taj Mahal?' Is it?

There's so much happening in NLIP research now. I get a real kick from seeing what seemed, with statistical NLIP in the 70s and 80s, like a poor relation at the party coming round again as an honoured guest, and from seeing operations on the language we all use taken again as rather important for computing, perhaps even for computer science.

Karen Spärck Jones was given the Association for Computational Linguistics' Lifetime Achievement Award at the 42nd annual meeting of the ACL in Barcelona on 23 July 2004.

Hall of Fame News
(The full list of companies can be found on www.camring.ucam.org)

Bango has won the Mobile Data Association tenth anniversary award for "Best Contribution to Mobile Content". Bango was recognized for its globally accessible, cross-operator platform that makes mobile internet content easily accessible to everyone with a phone.

Cedalion and **Surveys Online** (both founded by Chris Galley) have been sold to Charteris plc and SPH respectively. Cedalion was one of Scotland's fastest growing IT companies, having been in the Deloitte Touche Fast 50 for 5

consecutive years. Surveys Online was overall winner at the Scottish Enterprise Winners at the Web award 2002.

Linguit GmbH, a German-based language technology R&D company (founded by Jochen Leidner), has launched an SMS search engine capable of processing English questions in addition to keywords. A showcase dubbed 'Nuggets' has been available across the UK on the four major networks since August, well ahead of Google's launch of a keywords-only SMS search service in the US only. For more information, see www.mynuggets.net. Nuggets will be presented to the world in April at the 2005 Search Engine Meeting in Boston, MA.

NCipher has won the Microsoft Certified Partner Award for Security solution of the Year.

Sociality Ltd has designed and validated Labourdotdonor, the system it built for the UK Labour Party to make political fund raising transparent. Labourdotdonor implements a law – the Political Parties, Elections and Referendums Act (PPERA) – passed by Parliament in 2000 which mandates that annual cash and donations in kind exceeding £5k must be made public at www.electoralcommission.org.uk. To do this contributions in cash or kind over £200 must be recorded and aggregated by the parties. In certain cases they must report when an annual total from a donor exceeds £1k. The Labour Party has to track over 600 different collection points.

Sociality analysed these workflows and built a system that Stephen Uttley, Director of Finance at the Labour Party, says "gives the Labour Party confidence that captured donations will be reported in compliance with the PPERA, 2000."

Sophos has been named 2004 European Security Company of the Year by market consultants Frost and Sullivan. The award is presented each year to the company that has demonstrated excellence in the security market. It is open to companies either founded or headquartered in Europe.

The Ring Issue VIII January 2005
The Newsletter of the University of Cambridge Computer Laboratory Graduate Association
www.camring.ucam.org

11

Success Stories

From Rend Shakir, founder and CEO, Cambridge Matrix.

"Thanks! We got an impressive result from the last meeting [June London Drinks' party] ….I met Faisal Ahmed who introduced us to Valerie Holt (former MD of PSINet) who has now joined us as Chief Operating Officer"

Publications

Stephen Allot's (*T MA80*) article on the People Centric Approach to Economic Development – the policymakers' guide to growing a technology cluster from a research university is now available at http://www.ifm.eng.cam.ac.uk/ctm/teg/

Ian Benson (*Chu MA70 K PhD92*) is co-author, with the Financial Times' John Lloyd, of "New Technology and Industrial Change: the impact of the scientific-technical revolution on labour and industry" (Nichols, New York, 1983). He is also editor of "Intelligent Machinery: theory and practice" (CUP 1986).

Geoff Bowron (*W Dip70*) has completed his work on the BCS Code of Good Practice. It is now available on the BCS website at http://www.bcs.org/BCS/Join/WhyJoin/cop/ All feedback from Ring members would be gratefully received.

Letters

From Peter Cowley (F MA77)

The Cambridge Ring

Even as an inveterate hoarder, when I moved back to Cambridge recently (after 27 years away), I was astonished to find copies of a 1980 study I had done (and, of course, forgotten about) on the

original Cambridge Ring, whilst working for Logica.

After enduring Part I Engineering Science for two years, as the Computer Science Tripos was only one year in those days, I had come across the Ring as a Lab research project (and would, rather sadly, probably have some info on it, if I hadn't finally thrown away my course notes last year!).

Coincidentally, two years into my working life at Logica, I was off-charge and asked to do an in-house report "*to ascertain whether common requirements exist making a single ring solution practicable, and if so, what are the likely implementation costs?*" The underlying reason seemed to be, determination if Logica should get commercially involved with the Ring.

A most satisfying few weeks followed, in which I had a very enjoyable day in Cambridge interviewing Prof David Wheeler at the Lab and visited Steve Wilbur at UCL. In addition, I took a snapshot of some commercial implementers:

- Ferranti – producing dedicated Uncommitted Logic Arrays (ULA) to replace a lot of the glue;
- Inmos – government sponsored semiconductor manufacturer (remember the Transputer?), who wanted an in-house Ring;
- Linotype Paul – originally a manufacturer of type-setting machines;
- Logica VTS – who produced multi-user word processing systems;
- MDB Systems Inc – Californian DEC hardware specialist;
- Toltec Data – Cambridge-based design company who manufactured interface boards.

I came across a wide range of processors connected to the Ring including a plethora of PDP/11s, a Data General Nova, the University IBM 370 and CAP prototype, an Alpha LSI4, lowly Z80 and Motorola 6800s and a Z8000. I even got

The Ring Issue VIII January 2005
The Newsletter of the University of Cambridge Computer Laboratory Graduate Association
www.camring.ucam.org

12

to understand some of the technology and reliability problems.

However, before Logica decided how to proceed, I left to join a small company in Bavaria – does anyone know what happened next?

Who's Who

James Allen (*W MSt04*) is on a sabbatical in Peru. He is due to return in April 2005.

Matthew Amos (*F BA04*) is a software engineer at Apama.

Bruce Adam (*CHU BA93*) is company director of Applied Generics.

Ian Atkinson (*CHU BA93*) is company director of Applied Generics.

Marko Balabanovic (*CC BA90*) is Director of Personalisation at Lastminute.com.

Nic Brisbourne (*EM BA95*) is an Investment Executive at Cazenove Private Equity. He has invested circa £50m in 12 private companies in the US, UK and Europe.

Tim Cartledge (*W BA95*) has moved jobs. He is now Managing Director of Currency Derivatives and Systematic Trading at Barclays Capital.

John Davis (*JE BA82*) is a consultant for Cranfield Software Ltd.

Joe Dixon (*F BA87 PhD92*) is founder and managing director of Applied Generics.

Matt Doar (*JN BA88 PhD93*) has had a busy year. He's moved jobs (he's now at Venturi Wireless), is currently writing a book (provisionally titled "Practical Development Environments") and has had another son, Lucas.

Chris Galley (*CHR BA87*) is looking at new opportunities having sold both Cedalion and Survey Online in October 2004. (*See Hall of Fame news on page 11)*

Tim Glauert (*T PhD83*) is Head of Software at Newnham Research

Sreepriya Gopalan (*ED Dip03)* has just started on her PhD at the School of Informatics, University of Edinbugh. Until July 2004, she was working for Operis, a company founded by David Colver (*CHR MA80)*

Mark Howard (*CHU BA04*) is a software engineer with the Automation Partnership.

Jennie Lees (*T BA03*) is reading for a MPhil in Computer Speech, Text and Internet Technology at the University of Cambridge Computer Laboratory.

Hui Li (*G BA02*) is a Technical Operations Engineer at Pearson Plc.

Marcus Liotta (*W BA02*) is a software developer for Tain in Stockholm.

Peter McIntyre (*T BA03*) works as a consultant for Detica.

Congratulations to **Chris Morgan** (*JE BA01*) who ran the New York marathon and in the process raised over £3,000 for Marie Curie Cancer Care. Chris completed the marathon despite acute knee pain that forced him to stop for massage, deep heat and painkillers at the 18 mile mark.

Amir Nathoo (*JN BA02*) is a WebSphere Product Center Developer at IBM. He currently has 1 patent application in the pipeline. Amir has already had 2 patents granted. They were both filed when he was a gap year student.

Peter Newman (*W PhD89*) has joined a new startup, Netillion. His paper "In Search of the All-IP Mobile Network" - an exploration of the use of IP within the cellular mobile wireless network – is due for publication in IEEE Communications Magazine in December 2004.

Yi Hoo Ong (*CHU BA04*) is working as a software engineer for Amadeus.

The Ring Issue VIII January 2005
The Newsletter of the University of Cambridge Computer Laboratory Graduate Association
www.camring.ucam.org

13

Jon Pretty (*T BA04*) has founded Sygneca who are primarily involved in developing web-based applications and websites.

Daniel Pugh (*CL BA04*) is an analyst at Accenture.

Ammar Shanono (*HO Dip04*) is a Scientific Officer at the National Information Technology Development Agency in Abuja, Nigeria.

Paul Shearer (*JN BA81*) is an actor, writer and broadcaster. He has made numerous TV and radio appearances and writes regularly for The Times newspaper.

Richard Smith (*T BA04*) is chief engineer at Sygneca Ltd.

Charles Southey (*T MA90*) offers IT management consulting mainly to international law firms. However, he has also founded a web-based software company selling ASP.NET scripted web controls.

Quentin Stafford Fraser (*CAI BA89 PhD95*) is director, founder and CTO of Newnham Research. He is also on the board of Ellipsian Ltd and Ndiyo Ltd.

Richard Tandoh (*F Dip98*) is a pre-sales consultant at Selectica UK.

Jon Thornber (*TH Dip92*) has moved jobs. He is now technical architect at LogicaCMG.

Julian Tilley (*CTH BA82)* is Senior Project Manager at UbiNetics.

Andrew Wallace (*EM MA84)* has become CEO of Coe Group plc, CCTV electronics specialists.

Computer Laboratory News

Dr Frank Stajano joins Computer Laboratory

Following Professor Andy Hopper's appointment as Head of Department,

Dr Frank Stajano has become a faculty member of the Lab. Dr Stajano was appointed by the Laboratory for Communications Engineering (now a group within the Computer Laboratory) to the ARM Lectureship in Ubiquitous Computing Systems in 2000. He is a member of St John's College.

IEE Mountbatten Medal

Professor Andy Hopper has received the IEE Mountbatten Medal 2004, for his work in the computer industry and in helping the development of UK computer companies.

Professor Hopper was also given the **SIGMOBILE Outstanding Contribution Award** in Philadelphia on 28th September 2004, for pioneering new areas of research in wireless and mobile computing, driven by a unique blend of innovative academic research and recognition of its commercial potential.

Royal Society of Edinburgh Royal Gold Medal

Professor Robin Milner was awarded a Royal Gold Medal for outstanding achievement on 2nd September 2004. The medal was awarded for his "outstanding contributions to software engineering which have changed the face of modern computer science."

Keir Fraser wins BCS/CPHC Distinguished Dissertation Award

Dr Keir Fraser was awarded one of the two 2004 British Computer Society/Council of Professors and Heads of Computing Distinguished Dissertation Awards for his PhD dissertation "Pratcial Lock-Freedom". Keir Fraser was supervised by Dr Ian Pratt. Ian, a Senior Lecturer at the Lab and a Fellow of King's College, leads the Systems Research Group. He is also Chairman of the Ring.

IEEE Computer Society's Distributed Systems Online

Dr Jean Bacon, Reader in Distributed Systems at the Computer Lab and

The Ring Issue VIII January 2005
The Newsletter of the University of Cambridge Computer Laboratory Graduate Association
www.camring.ucam.org

14

Fellow of Jesus College, is Editor in Chief of Distributed Systems Online. DS Online (http://dsonline.computer.org) is a new electronic magazine which aims to serve the distributed systems community. Jean is also on the IEEE Computer Society's Board of Governors for 2002-2004.

Computer Lab Residents

The Computer Laboratory is also home to The Photonic Communications Research group. The group is particularly interested in researching into the high performance photonic components and systems for communication and sensing applications. Systems research has led to advances such as the development of the multimode fibre transmission technique now adopted in the Gigabit Ethernet standard. The group is also involved in ultrahigh speed systems research through a variety of projects including the EPSRC IRC in Ultrafast Photonics. Other areas of expertise include wavelength division multiplexing, ultra high speed (160Gb/s) time division multiplexed systems, integrated optics, optical sensing and high power and short pulse laser diodes. The group now numbers over 40 people, of whom approximately half are based in the top floor of the Gates Building. The remainder work in the main Engineering Department building.

The Ring
Issue VIII January 2005

William Gates Building
Cambridge
CB3 0FD

Tel: +44 1223 763585
Email: jan.samols@cl.cam.ac.uk
Website: http://www.camring.ucam.org

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Job Postings

Tideway
World Class Software & Test Engineers Reporting to CTO

As a Software Engineer at Tideway, you will be responsible for product design, implementation, and testing. You'll work closely with product management and other engineers to translate customer requirements into product functionality. On an ongoing basis, you'll write product & feature design specifications based upon functional requirements and develop code to implement the design with appropriate unit & system testing. You'll be responsible for estimating, planning and delivering to agreed scope and timescales, understanding the impact of software changes on system performance and scalability and will see the product through QA and customer deployment.

To find out more, please go to the Job Bulletin Board on the Ring website: www.camring.ucam.org

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Tideway
Technical Services Consultant Reporting to VP Services

As an early stage company establishing an innovative process and technology we need consultants who can work with customers to establish business cases, capture new requirements and deliver a commercial project.

To find out more, please go to the Job Bulletin Board on the Ring website: www.camring.ucam.org

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The Ring Issue VIII January 2005
The Newsletter of the University of Cambridge Computer Laboratory Graduate Association
www.camring.ucam.org

15