

Student News

Congratulations to our NZPC teams

A total of 46 teams from around New Zealand competed in the annual NZ Programming Contest on Saturday in five different categories. Our University of Canterbury teams came away with the top three places both in their section (Tertiary Open) and overall. Team *Beginners* (**Brendan Bycroft, Tho Dinh and Robert King**) took first place with 182 points, closely followed by *Chimera* (**Stephen Fitchett, Janina Voigt and Michael McGee**) on 172 points and *Team JET* (**Joey Scarr, Edwin Flores and Thomas Steinke**) on 143 points. The fourth "team", aptly named *Embarrassingly Unparallel*, was uniprocessor **Josh Oosterman**, who competed impressively against all the 3-cores, coming home in seventh position in the Tertiary Open category with 82 points.

Canterbury also took first place in the High School section: team *GRAVY GRAVY GRAVY* (Sarah Bennett, Jamie McCloskey, Tony Sun) on 52 points was 10 points clear of second-place Whitireia team *Here for the food*.

Full scoreboards are at <http://nzprogcontest.org.nz/Results/2010/NZPCResults2010.htm>. All results are still provisional.

ACPC Programming Contest results

Although our department can't take too much credit here, people might be interested to know that the Christchurch contingent of the 2010 NZOI team took first place in the Australian Computer Programming Contest (ACPC) last week, winning themselves a Dell Mini Netbook each. The ACPC is a two-hour high-school-level programming contest. The team was: **Jamie McCloskey** (Unlimited School), **Logan Glasson** (Burnside High) and Tony Sun (Christ's College). Jamie has done our 122, 208 and 329 papers and Logan did 121 this year. Tony is only year 10 -- we'll likely see him in our courses in the future.

Another Christchurch team, BHS-4 from Burnside High, got special mention in the Junior division of the ACPC

Also, Jamie and Logan both won bronze medals at the IOI (International Olympiad in Informatics) earlier in the month.

CSSE Postgrad conference

A very successful 2-day Departmental Postgraduate Conference was held on 31 August and 1 September.

It was organised by students this year (Ehsan Tabatabaei Yazdi, Sagaya Amalathas and Amali Weerasinghe)

On the first day of the conference, Professor. Jan Evans-Freeman, PVC College of Engineering, delivered a keynote address on the future of engineering at UC. On the second day Professor. Paul Fleming, PVC College of Science talked about developing a graduate profile in Science.

The conference program is at:

<http://www.cosc.canterbury.ac.nz/open/conf/pg2010/PGConference2010.pdf>

There was a prize for the best paper, which was awarded as follows:

Honours: **Oliver Cardwell**

Masters: **Chunhui (Brenda) Zheng**

PhD: **Jaco Fourie**

There were also some runner-up prizes and popular choice ones.

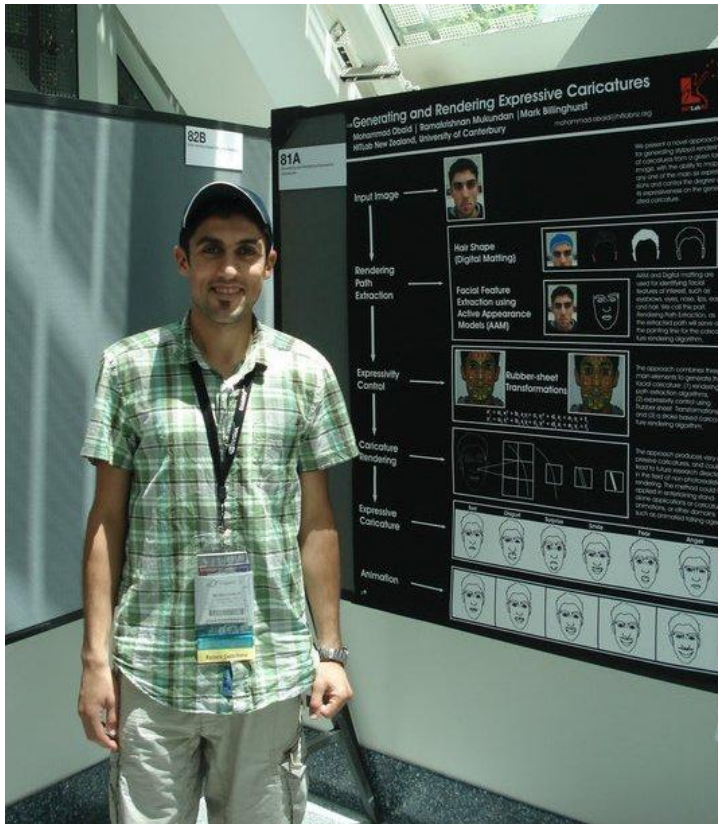


Samuel Williams, CSSE Master's student, recently released a new version of LSync, a free software synchronisation and backup tool.

<http://www.oriontransfer.co.nz/software/lsync>

LSync can be used to perform a wide variety of backup and synchronisation tasks. It was initially designed to assist with synchronising servers and the services they provide, however it can also provide a full range of backup functionality such as automatically rotated and pruned backups. Work is currently being done on an expert-system based control mechanism, for more complex sever synchronisation tasks. It is expected there will be advanced support for handling failure conditions and network connectivity problems, allowing multiple backup servers to provide redundant services and storage on a larger scale.

Mohammad Obaid a PhD student, presented his work at the most prestigious computer graphics conference, SIGGRAPH. Mohammad was overwhelmed by the quality of the conference and really enjoyed listening to the state of art talks and courses by very well known people in the computer graphics field.



Mohammad with his poster he presented.



Past and present students met up recently in Los Angeles at SIGGRAPH. Left to right: Jason Alexander, Kiyo Nakagaki with Mohammad Obaid

Dominic Winker, CSSE Masters student, has been awarded with the G B Battersby-Trimble Scholarship in Computer Science 2010

Stephen Fitchett, a PhD student was awarded a Research Intern Award to do a 3 month internship at Microsoft Research Asia in Beijing (starting in October).

More details are at <http://scholarship-positions.com/microsoft-nz-research-internship-award-programme-2010new-zealand/2010/07/06/> and <http://www.comsdev.canterbury.ac.nz/news/2010/100813a.shtml> (mentioned about halfway down).

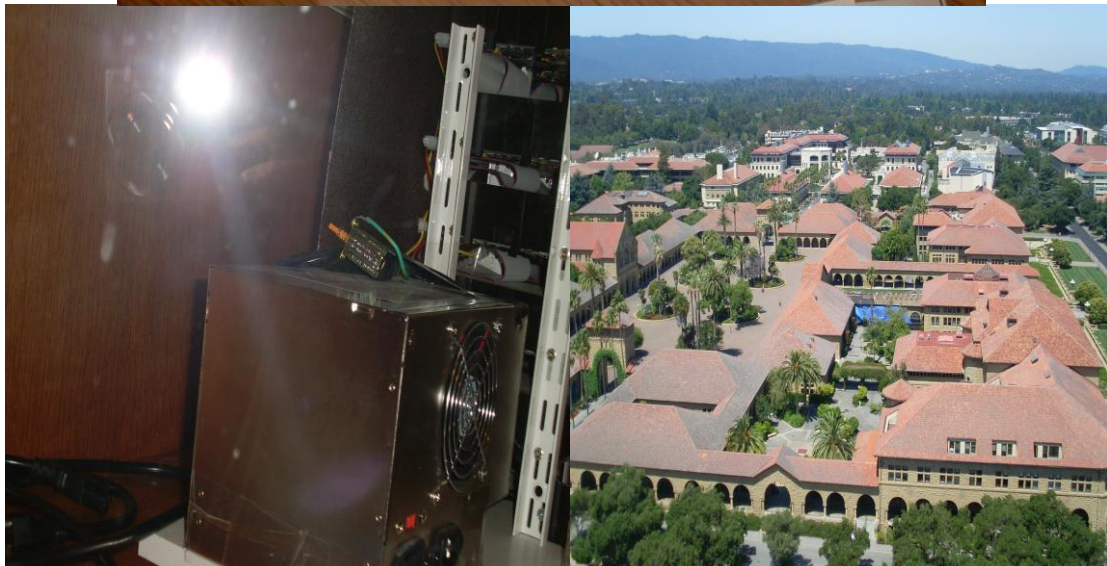
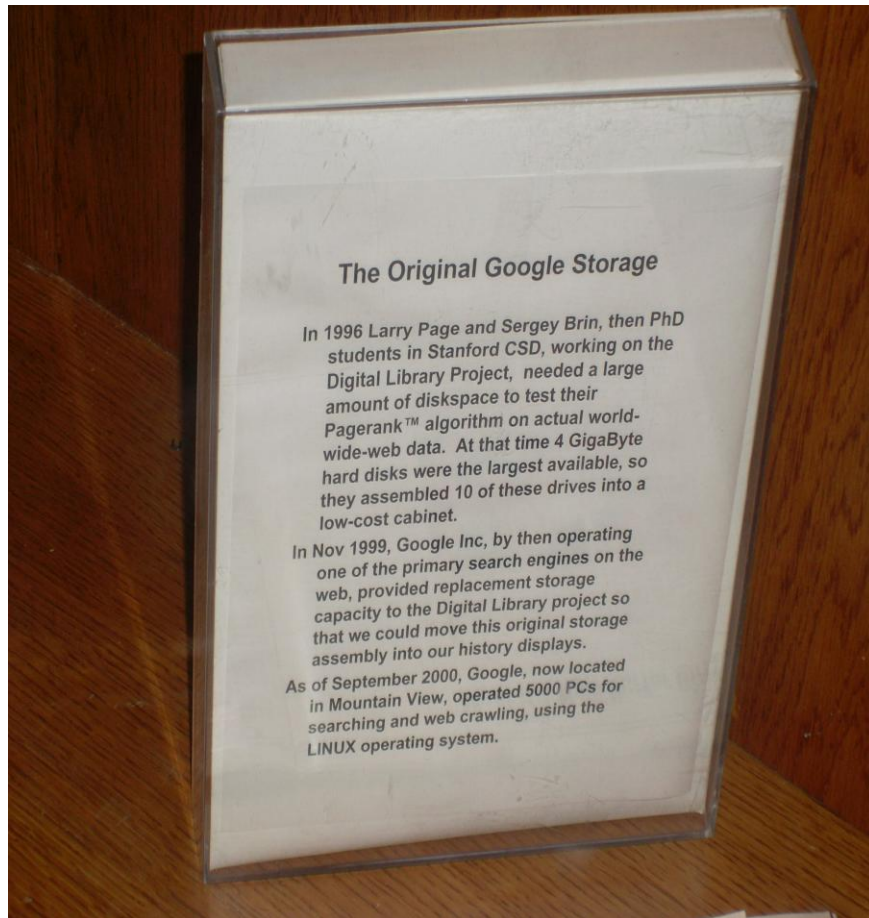
My Stanford Experience

By Sayan Kumar Ray

It was a great experience for me to attend the Stanford Graduate School of Business's (GSB) Summer Institute for Entrepreneurship (SIE) program that commenced from 20 June till the 16 July 2010 at the picturesque and sprawling 8180 acre Stanford University campus in Palo Alto, California. The program aimed to provide the students an unique opportunity to build the different analytical and practical skills, critical to launch a successful business. The most interesting and challenging part of the program was to work as a group on an innovative idea of your choice (ideas were proposed by participants only), groom that idea as a sellable project over the four weeks time and then finally pitch the idea as a package in front of a venture capitalist (VC) panel selected from eminent VC firms in the Silicon Valley.

I was one of the seven postgraduate students from New Zealand selected for the program by the Stanford GSB. Funding support for all of us was generously provided by the New Zealand Foundation for Research, Science and Technology (FRST). We were provided accommodation on the Rains Graduate Residence on the campus. On the 20 June, after the lunch, the program started off with welcome notes from Prof. Garth Saloner, the Dean of the GSB and Prof. Peter Reiss, the Faculty Director. Then projects and the respective project groups were finalized. The projects were on a wide range of topics from technology, science and medicine. There were fourteen different groups and each had usually five participants. Over the next four weeks, we used to have regular classes and group activities from 9 AM till 5 PM, on various subjects like accounting, finance, leadership and governance skills, marketing, verbal and non-verbal communication skills, operations, strategy etc, taught by academics of Stanford GSB. Evening hour activities included project discussions as well as assignments and readings, to avoid getting embarrassed in front of 72 odd people when called in the class the following day. The program also had frequent talks from both budding and experienced entrepreneurs. Different panel discussions were organized too. However, having said all these, it should be mentioned that it was not really 'all work and no play'. We did have some chill out activities like a day out on the Santa Cruz beach, scavenger hunt, soccer and parties. The final two days of the program had the different groups pitching their ideas in front of different VC panels and getting feedbacks (with likelihood of future funding for some). Each group had 40 minutes for its presentation. Our group's project on developing innovative and cost effective charging outlets for electric and hybrid cars got some great feedbacks as well. During the program I managed some time out to take a tour of the campus, particularly visiting the famous Stanford chapel and Hoover Tower along with the Computer Science and Electrical Engineering departments. It was a great feeling to

see the original Google storage on display in the Computer Science Department. Finally, a huge thanks to my Ph.D supervisor Prof. Krys Pawlikowski, my Department and the College of Engineering, for all their generous support and cooperation, including sponsoring my passage.



"A study leave in Europe" by Muhammad Asad Arfeen (a PhD student in Network Research Group).

I was awarded a special scholarship to attend two international conferences related with my PhD research project on "On-line Performance Evaluation of Future Internet and its Applications". First, I flew to Berlin in Germany, to attend TridentCom 2010 (the 6th International Conference on Testbeds and Research Infrastructures for Development of Networks & Communities, which was held there from 17 to 20 May 2010). This annual conference provides an international forum of scientists and engineers working in the area of global experimental telecommunication networks and research tools designed for addressing various challenges of future global networks, including Future Internet. Later, I also attended the Workshop on Stochastic Processes in Communication Networks for Young Researchers, organized by the International Centre for Mathematical Sciences & Cambridge University, and held in Edinburgh, UK, from 7 to 11 June 2010. This workshop was intended for PhD students and post-doc researchers who, like me, wanted to specialize in analysis of communication networks by means of stochastic models. This was a very interesting and mathematically advanced workshop. There were lectures and seminars on advanced techniques of stochastic analysis, with an emphasis on their applications in analysis of teletraffic expected in future telecommunication networks. Old concepts, current practices and the latest developments were presented by international experts. The major focus was on advanced queuing theory, graph theory and percolation theory. The workshop slides are available at <http://www.icms.org.uk/workshop.php?id=111#arrangements>.



Between these two conferences, I visited two well-known European research groups in the area of stochastic modeling of networks. The visits were pre-arranged by Prof. Krys Pawlikowski. The first visit was at the Telecommunication Networks Group (TKN), headed by Prof. Adam Wolisz at Technical University of Berlin. I met research students of the TKN group and discussed current research challenges related with Future Internet and wireless

communications. My second visit was at the AESOP (Analysis, Engineering, Simulation and Optimization of Performance) Research Group of the Imperial College in London, headed by Prof. Peter Harrison. I used this occasion to present my research plans and Prof. Harrison gave me a number of useful advices on Internet teletraffic analysis. Both groups were interested to find more about the research project on PlanetLab NZ initiated by our Network Research Group at University of Canterbury.

The knowledge gained during this travel greatly helped me in preparing my doctoral research proposal ("On-line Performance Evaluation of Future Internet and its Applications") which since then has been approved by the University of Canterbury. I am thankful to REANNZ and PlanetLab New Zealand project for awarding me this travel scholarship.

ACM ICPC Contest

On Saturday 10th September, 58 teams of 3 students competed in the South Pacific Regional contest of the ACM's International Collegiate Programming Contest. The contest ran simultaneously at 9 sites throughout Australia and New Zealand and the Computer Science and Software Engineering Department hosted the Christchurch site. Two University of Canterbury teams were competing locally and also three "unofficial" high school teams. The contest was challenging logistically as well as intellectually; the University was in a security lockdown at the time and it took a wave of the Vice-Chancellorial wand to overcome various security obstacles and the generous support of Hamish House to provide a venue the upstairs of the UCi3 building available. Tech staff Peter Glassenbury and Phil Holland spent most of Friday afternoon moving machines from the CSSE laboratories to the impromptu contest lab and persuading them against their protests to operate in the new environment.

After a warm-up session on Saturday morning, the main contest began at 2pm and ran for five stressful hours. Richard Lobb was site coordinator with Peter Glassenbury calmly dealing with all technical issues and Jenny Harlow doing everything from organising of lunch to assisting with the judging of submissions. Congratulations to Team Chimera -- **Janina Voigt, Stephen Fitchett and Michael McGee** -- who came sixth overall but finished up as the top New Zealand team (out of 14 teams) and have won themselves a trip to the World Finals in Egypt in February 2011! This will be the third successive year that a University of Canterbury team has represented New Zealand at the finals.

Euro View 2010, Wurzburg, Germany, by Mofassir Haque

I was graciously awarded a conference scholarship within PlanetLab NZ program, for participating in the Euro View 2010, which was held in Wurzburg, Germany, from August 2-4, 2010. The purpose of this visit was to learn about latest research in the field of Future Internet and get new ideas for my PhD research proposal. The theme of the conference was Future Generation Networks and its main focus was on "Future Internet Design and Experimental Facilities". A number of international experts from USA, Europe and Asia shared their insights into different aspects related to Future Internet. A total of 43 papers were presented. The first day sessions were dedicated to Prototypes and Testbeds, Global Environment for Network Innovation, Architectures, Convergence, New Protocols and Interfaces. On the second day the authors highlighted the current research trends in the field of Routing, Security, Future Internet Activities in the 7th Framework Program of European Union and

virtualization. Third day was reserved for German Lab experimental network status meeting. After the conference, I spent three days with the research group of Prof. Phuoc Tran-Gia in the Institute of Computer Science at the University of Wurzburg. The group has strong links with our Network Research Group of Prof. K. Pawlikowski at Canterbury, and is well known for their research on Future Internet Applications & Overlays. The visit gave me a great opportunity for discussing different research ideas for my PhD research proposal. It was an enriching and fruitful learning experience. I was exposed to stimulating talks, debate and discussion about the latest trends in the field of Future Internet. It gave me an opportunity to gain knowledge, new ideas for PhD proposal, and network of useful contacts. Germany is a beautiful country with friendly and welcoming people. I thoroughly enjoyed my visit. I am thankful to the Department of Computer Science & Software Engineering at the University of Canterbury, REANNZ, and Professor Dr. Krys Pawlikowski in particular, for granting me this conference scholarship.



Staff News

The subcommittee for the Departmental Strategic Funding of 2010, consisting of Tanja, Mukundan and Krys are pleased to inform that **Andy, Brent, Tad, Mukundan, Tim and Moffat** have been awarded grants from this funding.

Congratulations go to everyone.

Further details available in "Strategic Funding Applications – 2010 Awards" on:

<http://staffdocs.cosc.canterbury.ac.nz/research/>

Marsden Grants

Two groups in our department have won Marsden grants, led by Andy and Tanja respectively. This is a fantastic achievement - well done!

The projects are:

Understanding and improving the transition from novice to expert performance with user interfaces
Professor A Cockburn, Professor CA Gutwin (University of Saskatchewan)

Adaptive computer-based cognitive training for post-stroke rehabilitation **Professor AM Mitrovic**, Professor S Ohlsson (University of Illinois at Chicago) Dr A McKinlay, **Mr MM Mathews**

The announcements are at:

<http://www.royalsociety.org.nz/2010/09/24/marsden-fund-2010-announcement/>

For more details, there's a UC press release at: <http://www.infonews.co.nz/news.cfm?id=58022>



Research team: Moffat Mathews, Tanja Mitrovic, & Audrey McKinlay

Papers Accepted

Recent publications of the Network Research Group includes:

1. "Handover in Mobile WiMAX Networks: The State of Art and Research Issues", by **Sayan Kumar Ray, Krzysztof Pawlikowski** and Harsha Sirisena. IEEE Communications Surveys & Tutorials Magazine, No. 3, August 2010, pp.376-399; archived in IEEE Xplore.
2. "A New Topological Index for Capacity Allocation Problem in Survivable Networks", by William Liu, Harsha Sirisena, **Krzysztof. Pawlikowski and Andreas Willig**. In Proceedings of Australasian Telecommunication Networks and Applications Conference (ATNAC 2010), to be held in Auckland, 31 Oct - 3 Nov 2010); archived in IEEE Xplore
3. "A Fast and Simple Scheme for Mobile Station-Controlled Handover in Mobile WiMAX" , by **Sayan Kumar Ray, Swapan Kumar Ray, Krzysztof Pawlikowski**, Allan McInnes and Harsha Sirisena. In Proceedings of the 5th International Conference on Access Networks (Accessnets 2010), to be held in Budapest, Hungary, 3-5 November 2010; published by Springer, in ICST Lecture Notes series.

Oliver Cardwell's paper " Visualization and Analysis of Inverse Kinematics Algorithms Using Performance Metric Maps" was recently accepted for oral presentation at the International Conference on Visualization, Imaging and Simulation (VIS-10). The conference will be held from the 3rd to the 5th of November at the University of Algarve in Portugal. The paper provides an outline of Oliver's Honours project work along with a discussion of his research findings.

Mohammed Thaher presented a research paper in Amsterdam in June 2010; title: "An Efficient Algorithm for the K Maximum Convex Sums". The conference was the International Conference on Computational Science. This conference is a tier 1 conference; based on the Australian Research Council evaluation list. Mohammed's Supervisor is Professor Tadao Takaoka.

M. Obaid, R. Mukundan, M. Billinghamurst. C. Pelachaud. Expressive MPEG-4 Facial Animation Using Quadratic Deformation Models. In proceedings of the International Conference on Computer Graphics, Imaging and Visualisation (August 9 - 11, 2010). CGIV. IEEE Computer Society. Sydney, Australia.

M. Obaid, R. Mukundan, M. Billinghamurst. Generating and Rendering Expressive Caricatures. (Poster) In the proceedings of the international conference on computer graphics and interactive techniques (SIGGRAPH 2010). 25-29 July, 2010. Los Angeles.

M. Obaid, R. Mukundan, M. Billinghamurst. Rendering and Animating Expressive Caricatures. In proceedings of the third IEEE International Conference on Computer Science and Information Technology, IEEE ICCSIT2010. 9-11 July 2010, Chengdu, China.

A paper by **Amali Weerasinghe, Tanja Mitrovic, Martin van Zijl and Brent Martin** has been nominated for the [best student paper award](http://www.icce2010.upm.edu.my/paper_awards.html) (http://www.icce2010.upm.edu.my/paper_awards.html) at the 18th International Conference on Computers in Education 2010 (ICCE 2010). The ICCE2010 is organized as a set of theme-based sub-conferences. There are 6 nominations (one for each sub-conference) and this paper has been nominated for the sub conference on AIED/ITS (AI in Education/Intelligent Tutoring Systems) and Adaptive learning.

The paper, titled *Evaluating the Effectiveness of Adaptive Tutorial Dialogues in EER-Tutor* presents one aspect of Amali's PhD project where students engaged in adaptive dialogues with the ITS about particular domain concepts during their problem-solving activity.

The paper will be presented at the [ICCE 2010](http://www.icce2010.upm.edu.my/index.html) (<http://www.icce2010.upm.edu.my/index.html>) in Malaysia later this year. The ICCE 2010 is organized by the [Asia Pacific Society for Computers in Education](http://apsce.net/) (<http://apsce.net/>).