Lab creates magic with renowned NZ author

An internationally recognised New Zealand children’s writer and illustrator has teamed up with the HIT Lab NZ to bring one of his stories to life, thanks to a new government grant.

Gavin Bishop and the HIT Lab NZ have received a grant of over $18,000 from the ‘Smash Palace Collaborations Fund,’ to transform Bishop’s picture book, Giant Jimmy Jones, into a three-dimensional animation utilising the Lab’s MagicBook technology. The MagicBook software enables the characters in a story to leap from each of the pages when they are viewed through a hand-held display. New virtual scenes and models can be seen by simply turning the pages of the book.

The fund was set up by Creative New Zealand and the Ministry of Research, Science and Technology.

Creative New Zealand chief executive Elizabeth Kerr says the aim of the Smash Palace fund is to ‘help foster an environment where the arts and sciences can connect, collide and collaborate.’

The idea for the fund resulted from a one-day Smash Palace forum last year that brought together 80 artists, scientists, technologists, designers and policymakers. Of the 21 projects that applied for funding only three were successful in obtaining a grant.

HIT Lab NZ director Dr Mark Billinghurst says the Smash Palace funding has provided the Lab with an outstanding opportunity to collaborate with a world renowned author such as Gavin Bishop, and introduce him to some of our interface technology.

Gavin Bishop says receiving funding for this project is ‘very timely’.

“I’ve reached a point in my career where it is relatively easy to keep repeating myself in my work. The MagicBook project is going to provide an opportunity to work in an area that I know nothing about. Therefore it will provide an enormous and exciting challenge for me, artistically and intellectually. I anticipate it will extend my understanding of how a reader relates to a picture book. The future potential for this new medium is limitless - something that I cannot even imagine.”

Dr Billinghurst and Mr Bishop will run a week-long workshop in conjunction with the Christchurch City Library to teach high school students how to develop content for the Giant Jimmy Jones MagicBook. This will be followed by an exhibition of the children’s work.

The completed project will be installed in the Canterbury Public Library later this year for the public to experience.
Lab joins key Australian research initiative

A new and highly innovative Australian centre for interaction design has invited the Lab to become a key player in its research effort.

The Australian Federal Government has committed A$12.4 million over seven years to the Australasian Cooperative Research Centre (CRC) for Interaction Design (ACID), based at the Queensland University of Technology (QUT) in Brisbane. QUT and its industry and academic partners will invest a further A$7.4 million to develop creative technologies for improving access to the digital world and creative industries.

Interim CEO of ACID, QUT’s Professor Jeff Jones, says the HIT Lab NZ will play an essential role in developing “the establishment of an innovation system in the Asia Pacific region, particularly in the fields that are merging design and interaction with technology and creative industries.”

“Dr Mark Billinghurst is a globally recognised innovator and we are excited about the possibilities for new research and commercialisation that he and his New Zealand partners bring to the list of other Australian participants. We see Mark and his Lab as the key element that makes ACID an organisation that is truly global and truly Australasian,” says Professor Jones.

The HIT Lab will be contributing staff time and its technologies to a number of collaborative research projects and will also host visiting researchers from the five Australian universities partnering in ACID: QUT, the University of Queensland, the Royal Melbourne Institute of Technology, Murdoch University and Griffith University.

HIT Lab NZ director Dr Mark Billinghurst says he is very excited about the ACID initiative and is thrilled the Lab has opportunity to work with such an “impressive set of partners.”

“Involvement with large research efforts such as ACID are vital for the HIT Lab’s engagement with the international community. ACID will definitely be one of the major centres for innovation in interaction design.”

ACID is one of 11 new Australian national Cooperative Research Centres chosen from over 60 proposals.

In addition to federal government funding ACID has major industry backing and core commercial partners such as SGI, Auran Technologies and New Zealand’s Cloud 9 Screen Entertainment Group.

ACID research projects will begin in the later part of 2003 and will continue for the next seven years.

More information about ACID, its research focus and the partners involved can be found at www.interactiondesign.qut.edu.au/
Consortium grows in diversity

Three more companies have recently joined the Lab’s consortium, further increasing its diversity.

Two Christchurch-based companies, Intranel Ltd and Sport Guidance Ltd, and a United States company, Charmed Technology have joined the Lab’s consortium in the past two months.

HIT Lab NZ’s director Mark Billinghurst says having a wide variety of consortium members facilitates the birth of extremely innovative ideas.

“At our consortium meetings we find that companies who would not normally interact with each other begin exchanging perspectives and generating ideas they wouldn’t generally come up with themselves. The varied nature of the consortium is of great benefit in spawning innovations within the Lab as well as between consortium members.”

The low cost of research and development in New Zealand was a major draw card for the Lab’s first overseas member, Charmed Technology. This Los Angeles-based company creates wearable computers to produce affordable mobile wireless Internet products, services and technologies.

Charmed Technology’s chief executive officer, Alex Lightman says he is “proud that Charmed is a member of the HIT Lab consortium.”

“We have collaborated with Mark and his colleagues since early 2000, and have found them to be highly intelligent, creative, gracious, and able to create the sort of technology and content that gets more "WOW!" responses than anything else I've even shown.

... every time I see the latest work of the HIT Lab my confidence is confirmed again. Augmented Reality, HIT Lab style, is going to change the face of computing, and people, forever.”

Intranel Ltd provides cost effective solutions for the intelligent monitoring of video surveillance systems. Their technology reduces the number of staff required for monitoring of surveillance systems as well as providing real-time event-based analysis of all video data, providing essential data to security staff to act on a threat on time.

Intranel’s chief executive Despina Kerdemelidis says HIT Lab NZ’s networks in the US and research capabilities will be invaluable for further enhancing Intranel’s business.

“We joined the HIT Lab consortium because it gives us access to international HIT Lab networks and high calibre researchers. Our team wants to collaborate with researchers at HIT Lab to develop applications using our ‘Wide-Area-Digital’ technology.”

“Being part of the consortium will also give us a better chance to be successful in bidding for large projects. In particular, we want to be part of a consortium bidding for large US government projects. We have the technological advantage and organisational flexibility. We hope that our association with HIT Lab will provide us that opportunity.”

Sport Guidance Ltd focuses on utilising technology to accelerate motor skill learning for sport and recreation.

Sport Guidance’s general manager Peter Burley says his company is looking forward to working with the Lab’s high calibre researchers.

“The Lab will provide us with a lot of development support in computer-vision, augmented reality and gaming domains which encompasses our product development. There is also the added strategic advantage of networking with other consortium members and the government through HIT Lab NZ. The

US lab also supports a low-cost fast-track into the US market optimising our marketing efficiency.”

The other eight member-companies are: Trimble Navigation NZ Ltd, Effusion Group, Jade Software Corporation Ltd, Mobile Surgical Services, Applied Research Associates New Zealand (ARANZ), Pulse Data International, Hewlett Packard NZ Ltd and Virtual Spectator.

The HIT Lab’s Virtual Worlds Consortium provides the Lab with an entrepreneurial and industrial flavour and plays an integral role in helping to support and guide the Lab’s research and development. The Lab collaborates with its consortium members on projects and helps formulate strategic partnerships between its members and academia.

For more information on the HIT Lab’s Consortium contact Miranda Hogan on +64 3 3642358 or via email miranda.hogan@hitlabnz.org

Profiles of the Lab’s new consortium members

Charmed Technology

Charmed Technology is an MIT spin-off that develops affordable, wearable Internet products - ranging from two pounds to one ounce - and services and technologies related to 4G wireless broadband. For two years Charmed has sold the CharmIT wearable computer and Heads Up Displays. The second product manufactured by Charmed Technology is "Charm Badge (TM)", an electronic business card that can upload and transmit user information through infrared technology.
Profiles of the Lab's new consortium members (continued)

Charmed Technology's vision is to incorporate the unwired Internet into fashion, lifestyle and health applications by creating inexpensive wireless mobile devices that will allow individuals to access the World Wide Web anywhere and anytime through wireless technology. With enabling technologies already in place, Charmed Technology plans to completely penetrate the market, revolutionizing the way people interact with each other through wireless Internet communications. The unique transportal (TM) system provides multiple user access to a global computer network.

As the pioneer of the smallest, most economical platform for Internet services, Charmed Technology will allow individuals to be connected to the Internet via their eyeglasses, necklaces, or lapel pin, even a child's toy.

www.charmed.com

Intranel Ltd

Intranel Ltd is currently developing systems for wireless pervasive vision over wide areas.

Monitoring a large number of cameras from a central location is not a trivial task. Even finding available human resources to observe events is expensive and can be infeasible in large systems. Intranel is developing the technology to securely monitor expandable surveillance networks of many thousands of cameras.

The company is currently researching and developing:

- The Wide-Area-Digital system infrastructure for implementation of real-time distributed wireless surveillance technology over large and possibly remote areas.
- Configurable Intelligent Pervasive (CIPER) surveillance hardware designed to bring to the attention of monitoring staff the relevant video feeds where alert-level events have occurred.
- Biometric Real-Time Neural Analysis (RETINA) systems capable of biometric face recognition and tracking, counting in and out, of buildings and egress ways, perimeter breach and motion analysis.

The company hopes to increase efficiency and speed up reaction time when identifying and resolving a potential threat or situation.

Intranel is developing systems optimised for security applications although the technology is not limited to security. Any application in the field of pervasive vision may benefit from the technology.

www.intranel.com

Sport Guidance Ltd

Sport Guidance Limited was set up in 2001 to develop sport outcomes. It provides research in the areas of sport and recreation development and has worked with SPARC, Sport Canterbury and a number of sporting organisations.

A key focus for the company is the use of technology to assist in motor skill development and training. Sport Guidance Ltd have three products in this area at present. The first of these is a non-invasive human movement tracker that recognises and codifies human movement without the need for markers. The second is a cricket ball tracker that allows the user to practice cricket play in nets or back yards against a virtual field with full knowledge of results (wagon wheel generation, bowling speed etc). The third product is a simulator for safely training aerial snowboard skills. Telemetry generated provides feedback to increase the speed of motor skill acquisition and information for augmented reality interaction with a visual screen.

ICT Consortium receives NZ’s top research prize

A consortium made up of 21 companies and research providers, including the HIT Lab NZ, has received over $17.5 million of conditional funding for the largest ever government-funded ICT project in New Zealand.

The funding was awarded to the Medici project in May 2003 by the Foundation for Research, Science & Technology (FRST). Under the scheme, FRST will match every dollar invested by industry. Together the Medici consortium members have committed $1.2 million in cash per year for five years and a further $1.5 million of in-kind contributions.

HIT Lab NZ director Dr Mark Billinghurst says the conditions for funding include the consortium completing a rigorous process of due diligence which he expects will take about three months.

Continued page 5
Infusion of talent for Lab

Over the last two months the Lab has taken on three new staff members who have a wealth of international experience.

The HIT Lab's new faculty member and business manager Richard Green has recently returned to New Zealand to take up his position at the Lab. He is a successful businessman and an academic, having run several technology companies overseas and undertaken PhD research at the University of Sydney.

Dave Blizzard, a part-time lecturer in the Computer Science department at Canterbury University, is now also a part-time Senior Research Scientist at the Lab. He spends six months of each year in New Zealand and the remainder of the year back in the United States.

The HIT Lab NZ director Dr Mark Billinghurst says the HIT Lab team will work closely with a number of people from different universities and companies to develop innovative applications in this area.

The Medici consortium members include Otago, Canterbury, Victoria and Massey universities, Industrial Research Ltd, Weta Digital, Right Hemisphere, Virtual Spectator, Formway Furniture, Media Lab South Pacific, Telecom International, Web Research, City Link and Natural History Unit NZ Ltd.

Several venture capital and regional development agencies such as the CDC are also partnering on the project.

The aim of the five-year project, originally the brainchild of Dr Billinghurst, is to develop a platform technology to provide secure tele-collaboration that will allow remote collaborators to work together as easily as if they were seated around the same table.

The project encompasses four streams of research: security, network infrastructure, application development and usability evaluation. The HIT Lab NZ is responsible for leading the application development research effort.

Billinghurst says the Lab is extremely fortunate to attract both highly skilled New Zealanders returning back to their native land as well as research scientists from overseas.

“‘It’s wonderful that we can provide a place for talented New Zealanders and others to return to and undertake world class research. I’m amazed at the calibre of people that we’ve been able to attract here and am glad for the international flavour that they bring to the lab’”, says Dr Billinghurst.
neural networks and high level languages. During his Bachelor of Science at the University of Sydney he developed a computer vision based system to track eye movement for disabled human-computer interaction.

Richard’s current research interests include computer vision, human-computer interaction, cognitive science, software engineering, commercialisation, education, biomechanics, gymnastics, skiing and snow-boarding.

Richard is also an accomplished athlete having represented New Zealand in men’s gymnastics. He has continued involvement in the sport by coaching and judging Olympic level gymnastics both here and overseas.

Dave is a Senior Research Scientist at the HIT Lab NZ and a Lecturer in Computer Science at the University of Canterbury teaching Java, C#, and object oriented database management. His teaching is based on many years of solid industry experience.

His diverse experience includes everything from creating real-time embedded control systems for paper mills to managing the design and implementation of large scale online database applications for major banks.

His other interests include bicycle touring, playing music, and re-modelling the homes of his four grown children.

Anna-Lee has spent the last 9 years living in both New Zealand and the United States while pursuing degrees in Communication Studies and Health Sciences from Brigham Young University and a certificate in Fitness Industry Training. During this time she worked for a range of organizations including The RNZAF Museum, Brigham Young University’s College of Nursing, and Hawaii’s Polynesian Cultural Centre.

Outside of her work interests, Anna-Lee enjoys spending time with her family, rollerblading, travelling, music and singing, and being a typical DIY home renovator.

Lab formulates closer academic ties

Links between the HIT Lab NZ and the Christchurch Polytechnic Institute of Technology (CPIT) strengthened last month with the opening of a HIT Lab office at its city campus.

The new HIT Lab NZ office located in the School of Computing will be utilised by CPIT’s staff and students to work on collaborative projects with the Lab.

HIT Lab NZ’s director Mark Billinghurst says he is very impressed with the level of applied research being undertaken at CPIT and sees the exchange of knowledge between staff and students of the Lab and CPIT being beneficial to both parties.

“CPIT is a hot bed for practical creativity and I look forward to this being applied to some of our projects. In turn HIT Lab NZ can expose the staff and students of CPIT to some of the latest research in the field of computer-human interfaces and the technology of our consortium partners.”

Dr Billinghurst and other HIT Lab staff members will be spending time at the office each week spreading the word about the Lab and exploring project opportunities with CPIT staff and students.

Dr Pim Borren, Dean of the Faculty of Commerce at CPIT, says he is looking forward to working with the Lab.

“We are very excited to have a HIT Lab NZ office on campus. We see tremendous potential to both our School of Computing as well as with the School of Art and Design and the New Zealand Broadcasting School. It will be fantastic having HIT Lab staff on site for half a day a week and we look forward to the many opportunities, especially in the area of student projects.”

“The opening of the office also provides the opportunity for CPIT to forge closer working relationships with HIT Lab’s local founding partners Canterbury Development Corporation and the University of Canterbury,” says Dr Borren.
**Hit Lab NZ Projects**

In each edition of ‘Interface’ we endeavour to provide the latest information on Hit Lab projects. Outlined below is a brief overview of a project that is currently being worked on in the Lab.

Smash Palace is a collaborative project between the HIT Lab NZ & NZ children’s author and illustrator, Gavin Bishop. This project explores how a children’s book can be transformed into a new type of reading experience through the use of augmented reality (AR) technology. Gavin Bishop’s picture book, Giant Jimmy Jones, is being converted into three-dimensional (3D) virtual content using the HIT Lab NZ’s MagicBook technology. The aim of this research is to examine whether a reader’s experience is enhanced when they view the 3D animated content.

The Smash Palace work is an art piece that demonstrates the benefit of collaboration between artists and engineers. As such, one benefit is the exposure of authors to new technology that could enhance their story telling. In addition, this work will serve as the focus for an education program that will be used to teach children about 3D modelling and spatial concepts. Future research will explore ways for readers to interact with 3D content.

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**Featured Technology FastScan™**

FastScan™ is an ingenious handheld 3D-object scanner created by Christchurch company Applied Research Associates New Zealand ([www.aranz.com](http://www.aranz.com)) and sold by its American partner Polhemus ([www.polhemus.com](http://www.polhemus.com)). FastScan acquires three-dimensional surfaces by gathering measurements made by smoothly sweeping a handheld laser scanning wand over an object — in a manner similar to spray painting. The object’s image appears in real-time on your computer screen and the finished scan is processed to combine any overlapping sweeps, significantly reducing the time to develop surface models of virtually any object with minor or no metal content. As previous equipment of this type was typically limited by using a stationary laser and rotating object platform, FastScan is revolutionary in its ease and flexibility of use. Not only can the objects being scanned move during the process, but it is effortless to use multiple scanning passes to ensure every corner and indentation of the surface has been recorded.

FastScan works by projecting a fan of laser light on the object while one or two cameras view the laser to record cross-sectional profiles. By incorporating Polhemus-patented FASTRAK® motion-tracking technology in the wand and processing unit, the computer can reconstruct the full three-dimensional surface of an object in real time. This 3D data can then be exported to a host of popular 3D modelling, graphics, and CAD programs. As the motion-tracking technology uses magnetic fields, objects with significant metal components cannot be scanned as they interfere with the magnetic fields. As with other laser scanners, FastScan relies on visibility of the laser line, transparent and highly reflective objects are not registered very well, but this can be easily overcome by painting the object or covering it with white powder. Currently, the FastScan only records surface data — none of the object’s colour is recorded. Colour, however, is not necessary for most applications, and if it is necessary, digital photographs of the original object can be taken and laid onto the virtual object using other software like Deep Paint, made by New Zealand company Right Hemisphere ([http://www.righthemisphere.com/products/dp3d/](http://www.righthemisphere.com/products/dp3d/)).

The FastScan has applications in film and special effects studios, forensics, sculpting, industrial design, rapid prototyping, archaeology, surgery (providing accurate measurements for fitting prosthetics), medical research (for example, in obtaining a qualitative view of before and after surgical procedures) and any scientific research where detailed measurements of 3D objects are beneficial. Recently Hanger Orthopedic Group (the largest US prosthetics and orthotics supplier) have selected the FastSCAN as their primary 3D input device.
In May this year an important milestone happened in the US computer market. According to the July 2 edition of Computer World, for the first time there were more notebook computers sold in the US than desktops. Laptop computers accounted for 54% of the nearly $500 million US worth of computers sold in May 2003. This is up from 22% a year ago and the figure is expected to keep on rising.

Around the same time that this article was published I was presenting a talk at the NZ Computer Human Interface conference in Dunedin. At the conference I predicted that ours would be the last generation that would remember computers as beige boxes that sit on our desktop. It seems that this prediction is already coming true.

The laptop computer was first commercialized by IBM and Toshiba in 1986. It has taken nearly 20 years for this form factor of computing to begin to replace the desktop PC. Over that time we have seen a tremendous increase in computer processing power, storage and graphics ability. Yet the main interface metaphor for interacting with the computer has largely stayed the same. If we were to travel back in time to the mid-eighties we would still be using a mouse and keyboard to interact with windows and menus on a computer screen.

Now that the dominant physical form factor for computing is changing the interface is increasingly important. We can look at the diversity of computer hardware just being commercialized today and imagine which of these might replace the laptop in 20 years. Will it be the PDA, a wearable computer, a cell-phone sized device, or perhaps wireless access to immense Grid Computing resources? In each of these cases traditional interfaces no longer work well. In addition to this, as computing becomes more seamlessly integrated into our everyday life and the objects we use, there are other social factors that may determine market acceptance. If computing does disappear into clothing then we will buy it based on how it looks, not on the processor speed.

At the HIT Lab NZ we are already working on technologies that go beyond the point and click interface. For example, our SmartScreen work is developing technology that turns a white board into a collaborative drawing surface where people can use their hands for natural input. Our outdoor Augmented Reality work is developing wearable interfaces that use the real world as a contextual cue for information presentation. We are exploring the use of speech recognition, tablet PCs and tangible input metaphors.

In August we will be having an open house showcasing these technologies and the many other projects that the staff and students of the HIT Lab NZ and our academic and industrial partners are working on. I hope to be able to see many of you there so that we can talk about how we can invent the future of interfaces together!

Mark Billinghurst
Director, HIT Lab NZ

Directors Editorial — A Milestone in Computing

A large contingent from the HIT Lab NZ descended on Dunedin last month to join over 60 people from around New Zealand and the globe for the fourth annual New Zealand ACM’s Special Interest Group on Computer-Human Interaction (SIGCHI NZ).

The conference, held at the University of Otago, covered a wide range of topics relating to the area of human computer interfaces (HCI) including methods, web and global collaboration, usability, new technologies and evaluation. In addition to the formal sessions, the HIT Lab had an augmented reality demonstration running to entertain participants during the breaks.

The Lab’s director Dr Mark Billinghurst was one of two keynote speakers at the conference. Despite having the unenviable last slot at the conference Dr Billinghurst still managed to draw a crowd to discuss the innovative research being conducted at the Lab. The other keynote address was made by Stephen Brewster from the University of Glasgow, who is currently an Erskine Fellow at the University of Canterbury. He introduced the concept of haptic human-computer interaction, detailing the applications from visualisation for the blind to medical training.

Amongst the presenters there were a number of international speakers from countries such as Thailand, Germany and the United Kingdom. Other contributions included those from leaders in HCI research from several NZ tertiary institutes, including Elizabeth Kemp from Massey University, and corporate organisations such as Telecom.

On day two of the conference, much to the delight of the HIT Lab NZ crew, especially the Lab’s interns, the first snow of the season fell.

Next year the SIGCHI NZ will be held in Rotorua in July 2004.
A word from the International Director

It is gratifying to see the great progress being made by the HIT Lab NZ. And a special welcome to Richard Green who has just joined the staff of the Lab. The mother HIT Lab US is finalizing plans for our upcoming consortium meeting being held on 6-7 August at the University of Washington in Seattle. It will be the 23rd meeting of the Virtual Worlds Consortium that started in February 1991.

Members of the Virtual Worlds Consortium in New Zealand are automatically members of the US Consortium and are cordially invited to the meeting. Preceding the Consortium meeting, we will be holding a two-day short course to be taught by Mark Billinghurst, similar to the one he has taught in the past so successfully in New Zealand.

In terms of news, the HIT Lab US is happy to announce two new Consortium members: Pentax Corporation and Motion Research Corporation. Pentax is funding a project to develop a scanning fiber catheterscope. Motion Research is developing a product line of helmet displays for motorcycles and biking.

Plans are also continuing for opening new HIT Labs in Singapore and Australia to add to the HIT Labs in US, NZ and Mexico.

We are also excited about the award of the Medici project. We are hoping to connect the two HIT Labs at University of Washington and University of Canterbury via a high bandwidth cable so that we can develop a test bed for Medici and GreenSpace technologies to transport senses across the Pacific Ocean.

These are indeed exciting times.

Professor Tom Furness

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Announcements

- The HIT Lab US consortium meeting at the University of Washington in Seattle is on August 6 – 7 2003.
- The HIT Lab NZ has two new interns arriving in August. Claudia Nelles, from Polytechnic University of Hagenberg in Austria and Jörg Hauber, from the University of Applied Sciences in Germany.
- The HIT Lab NZ Augmented Reality Summer school workshop for University students will be held from November 24 – 28 2003. All food and accommodation costs are covered by the Lab. Students only have to pay $200 to cover course related costs. For further information please contact anna-lee.mason@hitlabnz.org or on +64 3 364 2349.

Upcoming Events

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<tr>
<td>August 6 – 7</td>
<td>HIT Lab US Consortium Meeting – University of Washington, Seattle</td>
<td>University of Washington</td>
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<tr>
<td>August 22</td>
<td>Consortium Member Lunch Symposium</td>
<td>Consortium</td>
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<tr>
<td>August 27</td>
<td>HIT Lab NZ Open house for further information contact <a href="mailto:anna-lee.mason@hitlabnz.org">anna-lee.mason@hitlabnz.org</a> or on +64 3 364 2349.</td>
<td>University of Canterbury</td>
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<td>September 26</td>
<td>Consortium Member Lunch Symposium</td>
<td>Consortium</td>
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<tr>
<td>October 7 – 10</td>
<td>Mark Billinghurst presents the paper &quot;Using Augmented Reality for Visualizing Complex Graphs in Three Dimensions&quot; at The Second IEEE International Symposium on Mixed and Augmented Reality - The National Center of Sciences, Tokyo, Japan. See <a href="http://www.ismar03.org/">http://www.ismar03.org/</a></td>
<td>University of Canterbury</td>
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<tr>
<td>October 21 – 23</td>
<td>The 7th IEEE International Symposium on Wearable Computers will be taking place at the Crowne Plaza Hotel, White Plains, NY 10601. The Symposium is sponsored by the IEEE Computer Society and HIT Lab has played a role in organizing the event. See <a href="http://www.cc.gatech.edu.ccg.iswc03/">http://www.cc.gatech.edu.ccg.iswc03/</a></td>
<td>University of Canterbury</td>
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<td>October 19</td>
<td>Consortium Member Lunch Symposium</td>
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<tr>
<td>November 24 – 28</td>
<td>Augmented Reality Summer School workshop.</td>
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