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[For the media](#)

[For alumni](#)

[For potential donors](#)

[For prospective international students](#)

> [Publications](#) > [UniSA News index](#)

# UniSA News

A newspaper of the University of South Australia

June 2001 issue

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## Regular sections

(to be available soon)

## Main stories

### Sci-fi communications - the new North Terrace chic

An SA-based consortium established and led by Emeritus Professor Mike Miller won more than \$9 million in federal government funding to introduce Star Trek style telecommunications technologies onto North Terrace within the next 12 months.

[\(full story\)](#)



### Satellites with space saving devices

The information capacity and accuracy of satellite links can now be more efficient in real terms as a result of research from UniSA's Institute for Telecommunications Research. [\(full story\)](#)



## Putting golf clubs to the fore

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## ITEK's work is from idea to market

In the year that yellow Post-it notes celebrate their 30th birthday, it is timely to reflect on what UniSA is doing for today's new inventors and their clever ideas. Certainly, in the past many of Australia's brightest and best inventors have found health, wealth and happiness overseas. ([full story](#))



## Child's play

If you're one of hundreds of staff at UniSA and many more thousands across the state who seem to be perpetually juggling - work, kids, dinner, lunch boxes, fun times, washing, sport, car service, shopping, bills, quality time with partners, studying, more work (yikes) - the 10th Birthday family day did offer some respite. ([full story](#))



## Other stories

(to be available soon)

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### Editor:

[Jessie Byrne](#), ph (08) 8302 0578

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[Karen Williams](#)

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[▲ Back to top](#)



[For staff](#)

[For the media](#)

[For alumni](#)

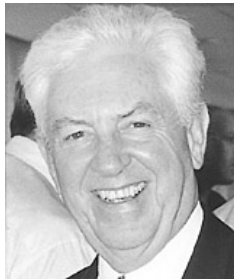
[For potential donors](#)

[For prospective international students](#)

> [Publications](#) > [UniSA News June 2001](#)

## Sci-fi communications - the new North Terrace chic

by Michele Nardelli



Tech boulevard: mNet chair Prof Mike Miller leading the charge to bring telecommunications chic to North Terrace

An SA-based consortium established and led by Emeritus Professor Mike Miller won more than \$9 million in Federal Government funding to introduce Star Trek style telecommunications technologies onto North Terrace within the next 12 months.

The power-packed consortium known as mNet Corporation includes some of Australia's top telecommunications players.

Funding is from the Federal Government's Advanced Networks Program (ANP) and will be matched with \$24 million in-kind support from the consortium partners.

With Prof Mike Miller as chair, UniSA has played a leading role in the bid consortium along with other foundation members, University of Adelaide, Agile Communications Pty Ltd, DSpace Pty Ltd, the City of Adelaide, Playford Centre and Telstra Corporation, in conjunction with 13 other major university, business and government partners.

Prof Miller, who retired as director of UniSA's [Institute for Telecommunications Research](#) last year, says the project is an international research coup for South Australia.

"Where other cities may vie for fashionable boutiques and eateries, Adelaide will be leading the way with chic communications," he says.

The mNet project will provide a core network of next generation cellular mobile radio base stations along North Terrace from the National Wine Centre to UniSA's City West campus.

And in an important coup for UniSA's Whyalla campus, home to the South Australia [Centre for Rural and Remote Health](#), the sophisticated

technology will also be linked to Whyalla as a major outpost to trial and enhance telemedicine technologies.

"Interactive video teleconferencing will be possible using mobile hand-held communications devices similar to palm organisers. Tourists will be able to access mobile communications units that will provide visual directions, cultural, historical, entertainment and shopping information as they walk the North Terrace boulevard," says Prof Miller.

"The network will be supplemented by high-speed wireless local area networks (LANs) within selected buildings along North Terrace."

Prof Miller believes the project will put SA business and industry at the forefront by providing early access to new generations of wireless networks and strategic supporting services.

Already the project is attracting international interest. In a recent trip to China accompanying Adelaide Lord Mayor Alfred Huang, three Chinese university research institutions, Shanghai University, the Harbin Institute of Technology and the Harbin Engineering University, expressed interest in developing links with the Adelaide-based program.

The SA consortium was one of only three projects to win funding under APN from a field of 49 applications from around the nation - strong evidence of the state's high level expertise in advanced telecommunications research.

[▲ Back to top](#)



[For staff](#)

[For the media](#)

[For alumni](#)

[For potential donors](#)

[For prospective international students](#)

> [Publications](#) > [UniSA News June 2001](#)

## Satellites with space saving devices

by **Geraldine Hinter**



The Turbo Codec-QPSK Modem



The modem team:  
Craig Burnet, Colin Biggs, Marc Mirza, Andrew Guidi, Jeff Kasparian and Adrian Barbulescu

The information capacity and accuracy of satellite links can now be more efficient in real terms as a result of research from UniSA's [Institute for Telecommunications Research \(ITR\)](#).

ITR's research in the area of turbo codes represents a leap in performance, enabling international satellite organisations like Inmarsat in the UK and INTELSAT in Washington DC to transmit more accurate information on their satellites with high potential cost savings.

According to ITR's business manager [Jeff Kasparian](#), the modem has achieved world's best practice by performing better than all known currently available modems.

"Many of the modems that exist today simply can't deliver the error free capability that we can deliver because they use traditional technologies that don't allow the same level of integrity to be maintained," Kasparian said.

ITR's Turbo Codec-QPSK Modem uses turbo codes to transmit data more efficiently. The highly complex mathematical codes were discovered in 1993 by a team of French scientists.

"Turbo codes are a bit like turbo-charging your motor car to make an existing carburettor work more efficiently. These codes can speed up transmission because they use extremely sophisticated algorithms, or numerous mathematical manipulations, on very powerful computer chips to make them work," Kasparian said.

"The ITR has developed a strong international reputation for being able to work out how to use these codes in real systems using silicon

chips which operate at a fast pace and are inexpensive.

"As a result, we have won a significant contract with INTELSAT to help the company investigate the advantages of these new technologies.

"A two year project just completed for INTELSAT has produced results that met our expectations completely. What we predicted through simulation and analysis we were able to implement in real hardware, resulting in a very advanced prototype," Kasparian said.

ITR senior research fellow [Dr Adrian Barbulescu](#) led a team of researchers and engineers from ITR and two industry partners - OKI (Singapore) and DSpace (Adelaide) - in the development of the Turbo Codec-QPSK Modem.

"Using the cost saving technology, 64,000 bits per second can be transmitted from your laptop to anywhere in the world via Inmarsat satellites with higher rates to come," he said.

"The benefits trade off. If we want to transmit with less power we might need more bandwidth but if we want to squeeze information into the smallest possible space, we might need a bit more power." Kasparian is confident about the commercial potential of the ITR turbo technology.

"In a direct comparison between our modem prototype and one of the latest modems on the market, ours significantly outperformed the other by 1.5 dB, leaving us in doubt that our modem is the best performer on the international market today," he said.

[▲ Back to top](#)



[For staff](#)

[For the media](#)

[For alumni](#)

[For potential donors](#)

[For prospective international students](#)

> [Publications](#) > [UniSA News June 2001](#)

## Putting golf clubs to the fore

by **Geraldine Hinter**

Choosing the right club: Scott Edgecombe promotes quality standards as a matter of course



Golf is the most popular activity among men in Australia and the fourth most popular physical activity in the nation behind walking, swimming and aerobics, according to the latest Australian Bureau of Statistics (ABS) data on participation in sport and physical activities. Golf jumps to the number one sport in Australia if we agree with the claim of the Australian Golf Union that walking, swimming and aerobics are physical activities rather than sports.

In addition to the 1.33 million adult golfers identified nationally through a 1998/1999 ABS survey, golf is a very popular sport among young Australians. A national junior development program has introduced more than 350,000 children to golf since its launch by Greg Norman in 1992.

Not only is the spread of golf courses making a large footprint on the Australian landscape (or lots of little divots), golf's economic impact is considerable - worth about \$300 million to the nation annually according to the ABS population survey monitor.

A national survey of golf course respondents by researchers from UniSA's Centre for Environmental and Recreation Management (CERM) is the first comprehensive measure in Australia of feedback and expectations of customers using golfing facilities. It shows that while 74 per cent are regular users of golf facilities, only one quarter of players are club members.



"To attract more members, golf course owners and managers need to look closely at adopting strategies that can give their facilities a competitive advantage over rival golf courses," explains research associate [Scott Edgecombe](#).

"With the increasing importance of public accountability and regular evaluation fast gaining acceptance as a feature of good management practice, performance indicators have emerged as a key tool for leisure managers."

Working collaboratively with industry support, CERM has developed a series of performance indicators for golf courses aimed at providing owners and managers of golf facilities with the ability to assess, monitor and compare performance levels in operations management and customer service quality with those of other golf courses.

"We have defined 21 customer service quality standards. Applying these can help pin-point problems and point the way for corrective action," says Edgecombe.

CERM's quality standards include well-managed teeing off, well-maintained and high quality courses, behaviour standards and etiquette, on-course drink fountains and support facilities.

"When customer service indicators are reviewed in conjunction with CERM's operational management questionnaire and their own customer profiles, golf course managers will be able to better predict and determine the level of participation and profitability of their courses," says Edgecombe.

CERM's profile of public golf course customers shows that courses are dominated by men (83 per cent) and that more than one-third of users are adults aged 50 years and over. Morning tee offs are the most popular for 70 per cent of users, with just under half staying for less than three hours. One-third of users play on a weekly basis and 59 per cent play on weekdays. About 74 per cent participate in casual or social golf and, consistent with this, 77 per cent visit the golf course with a friend.

CERM's performance indicators are regularly used in more than 200 sports, leisure and aquatic centres, as well as a range of golf courses, bowls clubs, campsites and individual programs such as gymnastics in Australia, New Zealand and the United Kingdom.

Funding for the golf project was received from a number of local government

councils and interested organisations from across Australia.

[▲ Back to top](#)

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[For staff](#)

[For the media](#)

[For alumni](#)

[For potential donors](#)

[For prospective international students](#)

> [Publications](#) > [UniSA News June 2001](#)

## ITEK's work is from idea to market

by **Jessie Byrne**



Planning business: part of the ITEK team at work - Debbie Thomson (left), Bruce Tilbrook, Chris Keach, and Brian Guthleben

In the year that yellow Post-it notes celebrate their 30th birthday, it's timely to reflect on what UniSA is doing for today's new inventors and their clever ideas. Certainly, in the past many of Australia's brightest and best inventors have found health, wealth and happiness overseas.

Current UniSA projects could already have gone the same way, but for the work of [ITEK Pty Ltd](#), UniSA's business creator and incubator.

Right now, ITEK is helping commercialise projects in IT, satellite technology, water filtration, language teaching software, and life drawing on CDs, the majority conceived by UniSA researchers.

After six months in the job, ITEK CEO Brian Guthleben has nothing but praise for UniSA's support of ITEK and great hopes for the commercial potential of the projects that ITEK is currently progressing. He explains that, unlike the sound of its name, ITEK is interested in any idea or innovation with prospects for commercial development, not just those on the tech side.

But what makes something a success? Smiling wryly, Guthleben describes the true innovator.

"A passion for the product, commitment, determination. You can have a great idea, but it's a judgment about the people as much as of the innovation," he says. "To start a business is like running a marathon – once you start you've got to keep going and be consistent.

"Sometimes we have to suggest that someone keeps the intellectual property rights but gives up the management or commercialisation of the product. Perhaps you see a good business, but you're not the

person to run this business. It can be a big barrier, especially for people who want to do it all.

"On the product, you need someone to buy it! If no one wants to, then there's no market however great the idea and it can't be commercialised. All the better if the product is new, different and attractive."

ITEK manages the innovation process for inventors, which involves progressing the idea through a seven-phase commercial development model. Stage one entails getting to know the innovator and the product/service. If things look good from there, then ITEK begins the longer process of getting it to market. ITEK helps the would-be business owner to work out the product's feasibility, a marketing and strategic plan, the definition of the business, and lastly the formation of the company. It's from idea to market.

"Our major role is to bridge the gap between research and innovation and remove the barriers to commercialisation. We provide innovators with access to industry expertise. We plan to offer mentoring forums. Industry experts will be invited to participate in advisory panels to coach the innovator through business challenges," says Guthleben.

ITEK and its team of business managers also help innovators work through any partnership deals they might be contemplating, as well as providing assistance with seed funding, which can get the idea to a prototype stage, and venture capital, when the idea is established and proven and requires the money to take it onto a growth path.

ITEK's services are available to those outside the University community as well. At the moment, 30 per cent of ITEK's clients are external.

"I went to a conference in Canberra about technology parks and innovation and came away thinking we were the best placed of any of them to make a difference because ITEK brings to the University a gateway to business and the commercial world," he says with clear but considered enthusiasm.

Guthleben plans to make ITEK the champion of start-up businesses of all kinds and from all comers. He is interested in assisting innovators diminish obstacles to success.

[▲ Back to top](#)

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[For staff](#)

[For the media](#)

[For alumni](#)

[For potential donors](#)

[For prospective international students](#)

> [Publications](#) > [UniSA News June 2001](#)

## Child's play



The family day catered for the hungry...



... the playful



... the industrious



... and naturally, the families



There were also Greg Normans...



... and visitors from the wild

If you're one of the hundreds of staff at UniSA and many more thousands across the state who seem to be perpetually juggling – work, kids, dinner, lunch boxes, fun times, washing, sport, taxiing family, car service, shopping, bill paying, quality time with

partners, studying, more work (yikes) - the 10th Birthday family day did offer some respite. And we bet you had your doubts!

Despite the rain and winter chill the family day at the museum was a resounding success – hundreds of kids and as many adults can't be wrong.

About 800 people attended the day and from all reports they had a rollicking good time.

Amid the story telling, balloon gathering, face painting, sausage sizzling, lolly hunting, rabbit, clown and tiger chasing, palm reading, congo dancing with little breaks for a nice, warm, energy boosting Milo – there was also some time for a trek through the ever amazing museum.

Winner of the treasure hunt puzzler on the day was Kyle Marshall from Stirling who will receive a special pack of UniSA birthday merchandise. All other entrants will be sent a small token of the day.

But it seems people took away a lot more than just prizes. Comments from staff and family members was a real measure of satisfaction:

"I would like to thank all the hard-working staff who put together the activities, dressed up, got painted, stickered and tagged everyone yesterday at the family day. My family had a lovely time. On behalf of the children, many thanks. The parents especially liked having exhausted and happy children at home after the event!"

*Mary Ann Sieow, Magill*

"I took two of my grandchildren and they thoroughly enjoyed themselves. I was very impressed by the good-natured assistance given us in attempting the Treasure Hunt. The balloons and the refreshments were also greatly appreciated and all together it was a hugely successful event. Everyone was so generous with their time and enthusiasm and I'd like to thank you for making it possible."

*Ann Moore, Magill*

"I would just like to say what a great day it was yesterday. We all thoroughly enjoyed it and the kids had a wonderful time. In fact, we hadn't been to the museum for such a long time. It was a treat to see it again."

*Christine Warren, Underdale*

"As a mother of two young children, I appreciated being able to give my kids work-related pleasure - makes up for those times we all have when we can't play Fish or Scrabble because we have work to do! I imagine that many, many hours went into

planning it, and possibly involved staff who have no children of their own. Please let everyone know that my kids had a fabulous time."

*Rosie Kerin, Underdale.*

Special thanks to all who put this event together – to [Shona Hughes](#) for her tireless and inspired organisation and to her band of loyal helpers which included a rare collection of animals – a tiger, a rabbit and several packhorses!

[▲ Back to top](#)