

Sons and daughters at the original Nantah arch in Jurong West

The Nanyang river



You come from the tributaries of a great river, says President Su, reconnecting alumni with their alma mater on Alumni Day

Speaking to a large crowd of alumni in the Nanyang Auditorium on 29 November 2003, Prof Su admitted, half in jest, feeling like “the head of a family whose children had different mothers”.

He was referring to the diverse alumni population of Nanyang University (Nantah), NTI and NTU graduates, whom he said came from different chapters of the University’s history. In their totality, they represented a great strength. And more so now, in the third chapter – the era of the new *Nanyang*.

Hundreds of tributaries

The years have enriched *Nanyang* into a fertile flow. This was Prof Su’s alternative analogy of familial relations.

“Think of a great river. Perhaps the Yangtze, which has hundreds of tributaries. Each of you would have come from one of these tributaries... You are the fruits of the orchards on the banks, or grain from the rice fields. Nantah is the beginning of the flow... Perhaps 1980 and the merger with NUS is a man-made dam.

“The river started again from this dam, now flowing as a practice-oriented engineering institute, NTI... To this chapter two was added two great traditions – the School of Accountancy, originally with the University of Singapore, and

then NIE, both long flowing rivers that joined this flow and became NTU. Today, we are at the threshold of a thorough reengineering of the great river, from the source to the ocean.”

Prof Su expressed confidence that the new *Nanyang University*, rich in the humanities, social sciences, and physical sciences, would transform education in Singapore.

But for this to happen, all stereotypes of the University’s different “sources” had to be discarded. Nantah, for example, did not equal communism or outdated notions of the past. “They are the source of the great Nantah spirit of striving in the face of adversity, a great resource for entrepreneurship, and a bridge to the booming Chinese market,” he said.

Along with the strengthening of ties with alumni, Prof Su promised a listening ear to those who were keen to contribute to the “great adventure”.

He also thanked everyone for their support.

Alumni Day has been a tradition since 1994. Some 1,600 alumni, staff, students, and their family members attended the 2003 homecoming, which included sports and games in the morning, a buffet lunch and performance at the Nanyang Auditorium, and activities at the Schools. Alumni of the engineering Schools congregated at the Research TechnoPlaza for a special College of Engineering Family Carnival.

Regional hub for nanotech

NanoFrontier at NTU, the first of its kind in Southeast Asia, will drive the development and commercialisation of nanotechnology-enabled products, services and processes

About US\$1 billion was spent on nanotech R&D last year – and nanotechnology is expected to drive the next tech boom. Really small wonders are big business.

Which is why many companies are planning to cross the frontier of nanotech.

They can now turn to NanoFrontier, a new private entity wholly owned by NTU, for help. This was set up to encourage nanotechnology innovation and application development in Singapore and the region.

Housed in the Research TechnoPlaza, NanoFrontier functions as both a nanotechnology-centred application development centre and an industrial resource centre to fuel technology innovation and transfer to industry.

By working closely with Singapore-based companies, NanoFrontier will expedite the time-to-market for local nanotechnology applications.

Infrastructure available includes access to more than 100 NTU researchers working in nanotechnology and \$200 million worth of nanotechnology-enabled tools and equipment for project

“NanoFrontier will enhance NTU’s already vibrant research culture by acting as a magnet for pockets of nanotechnology in Singapore, culminating in a hotbed of nano activity on campus from which groundbreaking innovations can emerge.”

– Assoc Prof Bryan Ngoi, Director of NanoFrontier and Director of NTU’s Nanoscience and Nanotechnology Corridor



Small is big: Nanotech researchers developing equipment to measure sizes as small as one millionth the diameter of human hair

development and pilot production.

Other services provided include nanotechnology intellectual property repositories – both local and overseas – as well as contract R&D services and an up-to-date information directory on worldwide nanotechnology-related research and activities.

Joint application development projects will be encouraged, with NanoFrontier serving as a platform on which nanotechnology experts at NTU and intellectual property owners in Singapore and abroad can synergise their efforts to commercialise nanotechnology.

First in Asia

In pursuing its goal of turning scientific know-how into viable nanotechnology-enabled products and manufacturing processes, NanoFrontier will capitalise on NTU’s existing nanotechnology capabilities, its robust research culture, and strong track record in transferring technologies to industry.

The endeavour is backed by Singapore’s Economic Development Board (EDB). Said its Chairman, Mr Teo Ming Kian: “The establishment of NanoFrontier positions Singapore as the first in Southeast Asia to have a focus on developing nanotechnology-enabled products, services and processes. This enhances Singapore’s thrust to become a hub for nanotechnology application development.”

First Singapore-produced MBA degree programme in Shanghai

Executive MBA programme with Shanghai Jiao Tong University attracts city’s business elite; more joint programmes to be launched

A high-profile Executive MBA Programme (EMBA) was formally launched in Shanghai last November with Shanghai Jiao Tong University (SJTU), one of China’s top universities for engineering and business.

NTU and SJTU have also inked an agreement to co-produce new graduate programmes in engineering and business.

The EMBA Programme, for senior executives and industry leaders, commenced in March 2003 with 53 students, including high-level managers from some of China’s best-known companies, such as China Telecom and China Unicom.

It is conducted part time over 18 months in English and Mandarin by faculty from the Nanyang Business School and SJTU’s Aetna School of Management.

There are two in-residence periods in Singapore and an optional Overseas Business Mission. Graduates receive NTU degrees.

The formal programme launch, officiated by Mr Tharman Shanmugaratnam, Singapore’s Acting Minister for Education, and Mdm Yan Junqi, Deputy Mayor, Shanghai Municipal Government, was held on 7 November 2003 at SJTU’s city campus.

Said Mr Shanmugaratnam at the launch: “The joint EMBA programme in Shanghai is a natural follow-on after NTU’s many years of experience in offering bilingual management programmes to many of China’s senior policy makers and business executives.”

NTU plans to launch the EMBA

programme in other Chinese cities. It will also roll out several new programmes with SJTU, including two dual Master of Science programmes in Environmental Management and Construction Management, and joint Executive Programmes in Environmental Management and Construction Management.

Describing Shanghai as “a vibrant city with some of the best brains”, NTU President Prof Su Guanng said it would be an ideal base for NTU to expand its academic outreach to other major universities in greater China.

He added: “We look forward to sharing our management and teaching expertise with other top-flight universities in the country.”

Physical sciences school to be modelled after Caltech

First intake in 2005 with 300 undergraduates and 70 graduate students. Bachelor's course will offer majors in Chemistry, Physics and Mathematics

The new School of Physical Sciences to be established in NTU will be adopting one of the best models for education and integrating it within the strong Singapore system. Not only will this provide the best of both worlds, it will also lend the new school a unique flavour that prepares students for innovation.

Caltech, an elite institute renowned for its scientific and technological leadership, will provide the basic model for the new school; and within this model will be integrated the rigour and key objectives of Singapore's tertiary education.

Although Caltech is relatively small in size compared to its peers, typically having an intake of 200 freshmen and a total enrolment of about 2,000 undergraduates and graduate students, it

counts among its faculty and alumni 29 Nobel laureates. Caltech has eight academic divisions of study ranging from engineering to the physical and biological sciences, and the humanities.

Like Caltech, NTU's School of Physical Sciences will offer undergraduate and graduate programmes in the basic and applied sciences. There will be a strong interdisciplinary dimension.

It will complement the eight existing schools, especially the School of Biological Sciences and the five engineering schools. Strong foundation programmes and electives will be offered to students of these schools.

The Bachelor of Science (Honours) course in the physical sciences will offer majors in Chemistry, Physics, and Mathematics (including Statistics). This

rigorous four-year programme has a strong core curriculum and diverse areas for specialisation. Rich, hands-on exposure to R&D will be another key feature.

The Master and PhD programmes in the physical sciences will encourage fundamental and applied R&D with an interdisciplinary focus.

In addition to Bachelor's and graduate degree courses, the school will also offer mathematics, physics and chemistry as foundation subjects to students of engineering and biological sciences, as well as broadening courses, minors and electives to students from other disciplines.

A cap on enrolment

When operational in 2005, enrolment will be capped at 300 undergraduates (100 per major) and 70 master's and doctoral students.

This will ensure a high quality education even in the initial stages. Intake will expand to 600 undergraduates and 240 graduate students by 2010.

Graduates can look forward to career opportunities in the electronics, engineering, education, and life sciences industries, and in scientific research.

The establishing of the School of Physical Sciences is in line with NTU's plans to develop into a comprehensive university by 2005. The other new schools are the School of Humanities and Social Sciences – enrolling economics students this year and students of other disciplines in 2005 – and the School of Design and Media.



A special visit coincided with the unveiling of the new School of Physical Sciences on 1 November; Caltech's President, Dr David Baltimore, visited NTU, where he sparked off a dynamic exchange on educational and research issues. Dr Baltimore, one of America's most distinguished biologists and winner of the 1975 Nobel Prize for his work in virology, is pictured here with Dr Alice Huang, Senior Councillor for External Relations and Faculty Associate in Biology at Caltech, and NTU President Prof Su Guanng. Caltech topped a 1999 ranking of US research universities conducted by US News & World Report.

New undergraduate programme launching in July

Singapore's first Bachelor of Engineering programme in Chemical and Biomolecular Engineering

Want to create the next wonder drug or devise a new method of fabricating microchips? Or produce the next generation of nano-structured materials and high value-added chemicals?

NTU's new Chemical and Biomolecular Engineering programme, the first undergraduate programme of its kind in Singapore, will give just the grounding that's needed.

The four-year direct-entry programme offers both a strong foundation in the life and physical sciences, and rigorous

training in chemical and biomolecular engineering fundamentals.

This will produce a new generation of chemical and biomolecular engineers for the chemical and life sciences industries, where such talent is needed to develop and design processes for the production of a wide range of products from advanced materials to petrochemicals, pharmaceuticals, and protein and genetically-designed drugs.

Eighty students will be accepted in the inaugural intake. They will be taught by a core chemical engineering faculty at

the College of Engineering and teaching staff from six NTU schools, including the new School of Physical Sciences, reflecting the multidisciplinary nature of the curriculum.

Top students may complete the programme in three and a half years under NTU's Accelerated Bachelor's Programme.

For entry requirements and admission details, see www.ntu.edu.sg/oad. For course information, visit the College of Engineering website at www.ntu.edu.sg/coe/index.asp.

Admissions made easier

A Level Physics no longer a must when applying for undergraduate engineering programmes

From the new academic year in July 2004, NTU will consider admitting students without A Level Physics to its engineering programmes. Those who apply will just need a good A Level grade in at least one science subject, such as Physical Science, Chemistry, Biology, or Physics.

This is in addition to satisfying the basic entry requirements of a pass in General Paper and a second language, and other course-specific entry requirements.

For example, the new Chemical and Biomolecular Engineering programme requires an O Level pass in Chemistry, while the other engineering disciplines require an O Level pass in Physics.

The broadening of options is in line with NTU's flexible approach to education. It is hoped that more good students with a broad-based education, who lack specific paper qualification, will consider pursuing a career in engineering. Their customised education may involve taking some bridging modules in their first year.

NTU currently offers eight engineering programmes at the Schools of Mechanical and Production Engineering, Electrical and Electronic Engineering, Civil and Environmental Engineering, Materials Engineering, and Computer Engineering.

More overseas attachments

NTU is revamping its Industrial Attachment (IA) programme to include more overseas attachments, particularly in China

IA is an integral part of the practice-oriented, hands-on curriculum at NTU, and an average of 2,300 students go through the programme every year.

Overseas attachments were introduced in 1991 and stepped up in 1993. Close to 500 students have undergone their attachments in 24 countries since then.

The Office of Professional Attachments (OPA) is looking to provide more opportunities for overseas attachments as employers worldwide increasingly place a premium on overseas work experience, particularly in China.

It has secured more than 100 overseas placements for 2004. Thirty-seven students will be headed for China and another 70 to 12 other countries, including the US.

Students who go to China for IA will be attached to companies in Beijing, Shanghai, Shenzhen, Suzhou, and Yantai.

Besides increasing overseas placements, NTU is also restructuring the programme to make it more flexible in content and duration.

The 20th anniversary of IA was commemorated on 26 November 2003 at The Ritz Carlton. OPA registered its appreciation by presenting 10-year, 15-year, and 20-year awards to representatives of 82 companies and organisations out of more than 1,000 companies currently working with NTU on the IA programme.

Despite the increasing student population and the recent difficult economic climate, industry support for the programme remains resoundingly strong and has provided sufficient placements for all students.

IP&TEF2003

Leading technology exploitation

Capitalising on its strength as a university of industry, NTU organised and hosted the Intellectual Property and Technology Exploitation Forum (IP&TEF2003) at Global Entrepolis@Singapore, a mega international showcase of leading-edge technologies and innovations.

Held on 30 and 31 October at Suntec City, IP&TEF2003 brought together local and international intellectual property experts, patent agents, venture capitalists, and the Singapore R&D community in a series of activities fostering technological innovation, protection, and exploitation.

Dr James Larrick, President of Panorama Research, a private research institute supported by US federal research funds, gave the keynote speech at IP&TEF2003. He is the founder of the Palo Alto Institute of Molecular Medicine and has been involved in the founding of more than 13 biotechnology companies.

The two-day Forum culminated in two lively gatherings – a Dialogue & Consultation session for delegates to get advice on business and legal issues; and a Marketplace, where diverse technologies from local institutions and organisations were put up for “sale”.

NTU initiated the organisation of IP&TEF2003 in partnership with the Agency for Science, Technology and Research (A*STAR), National University of Singapore, Intellectual

Property Office of Singapore, and IP Academy.

Opening the Forum, NTU President Prof Su Guaning said that although the number of patents filed in Singapore had grown quite impressively (from 6,367 in 1998 to 8,070 in 2002), the true value of the intellectual property could only be materialised when the patents were introduced into the market.

Prof Su also opened the Distinguished Technopreneurs Forum – *Disruptive Innovations: Your Next Competitive Weapon* – at Global Entrepolis@Singapore on 28 October.

NTU leading the discussion on IP Technology Marketing Strategy and Venture Creation



BIGGEST war of words ever



Middle Temple might

The World Universities Debating Championships (Worlds) is the globe's largest and most prestigious debating event. NTU ups the ante by hosting the biggest ever Worlds in Singapore, with 900 debates held over six days

Taut arguments, flowing fast and furious, and quick comebacks kept the audience glued to the epic war at the Victoria Concert Hall on 3 January 2004. The word warriors in the final battle at Worlds 2004? A duo – former computer engineering students at NTU – representing the Singapore Institute of Management (SIM), a two-man team from the University of Sydney Union, and two pairs from UK societies Middle Temple and Inner Temple.

The battle was a debate on whether the abortion of foetuses should be banned on the grounds of permanent disability.

The event itself was a historic moment for Singapore, as no local team had ever “broken” into the semi-finals, let alone the finals, of a Worlds competition in its 24-year history.

And the excitement grew to fever-pitch for the NTU crowd, as the SIM students were alumni who cut their teeth on debating at NTU as members of the varsity debating club.

They lost to the team from Middle Temple, but as one of only three tournament runners-up, they did SIM, their alma mater, and Singapore very proud!

Hosted for the first time in Singapore and only the second time in Asia, Worlds, also dubbed *WUDC*, is the largest non-sporting student event in the world and arguably the planet's most prestigious debating tournament.

NTU won the bid in 2001 to host Worlds 2004, which attracted a whopping 900 students representing 120 universities and 30 countries.

The tournament, with 304 teams, was also the biggest ever, breaking the 1998 record of 292 teams in Greece.

Singapore fielded 12 teams from six tertiary institutions. In accordance with tournament rules, NTU could not

participate, despite its strong showing at previous international debating tournaments. (Worlds 1995 in Princeton, for example, saw NIE student Chitra Jenardhanan beating 400 debaters to the Best Speaker trophy. She is the first Asian and first woman to achieve this honour.)

Singapore President Mr SR Nathan opened the tournament on 28 December 2003 at the Nanyang Auditorium.

The debates proper were fired up on 29 December and held over six days, mainly on campus.

All universities participated in nine rounds of debates. The top 32 teams entered the octo-finals, the top 16 the quarter-finals, and the top eight the semi-finals, where the best four advanced to the grand final.

Four pairs of speakers debated in each session, with two pairs proposing the motion, and the other two opposing it. Motions were announced fifteen minutes before the start of each debate.

When the silver-tongued were not in action, they had fun lapping up Singapore and socialising at cultural events and gatherings, including a seaside BBQ at the Yacht Club, a New Year's Eve dinner at Suntec City, and a party at Embassy Bar.

BusinessWeek was the main sponsor of Worlds 2004. (See also back cover.)

IP&TEF2003

Buzz at the marketplace

Dr YY Cai and his research team from the School of Mechanical and Production Engineering were among the innovators at the IP&TEF2003 Marketplace with new technologies to market.

He demonstrated how learning and research on biology could be made more enjoyable through virtual reality games.

Dr Cai's life-science edutainment technology drew several enquiries from the Singapore Science Centre and the Islamic Religious Council of Singapore (MUIS).

"I found this a very interesting tool for the teaching of life-science concepts," said Muid Faizal Othman, a Religious Education Executive from MUIS, after donning 3D goggles to join virtual chimps in cars and mad cows on roller coasters in a Virtual Protein Theme Park.

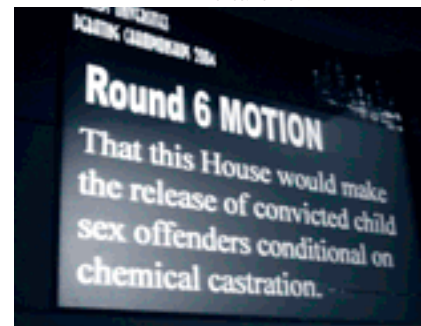
He travelled through an HIV virus protease, twisting and turning through molecules, and adjusted the speed of the ride as he pleased.

Dr Cai's novel gaming technology, achieved through clustering virtual reality in 3D space technology, is patented (pending approval) and can be used on both supercomputers and personal computers.

Fun fair: Muid Faizal Othman from MUIS came scouting for new age educational tools and took a ride through a Virtual Protein Theme Park



PHOTOS: LOI HUI MIN



Let's talk

NTU, Hyflux join forces in clean water research

Fresh synergy from researchers, students, and industrialists keen to establish membrane technology as key water processing technology

Clean water can be had. But cheap clean water? This is the challenge NTU and Hyflux will meet head on, as signatories to a Memorandum for Collaborative Research that has jumpstarted new R&D projects in membrane technology for water processing in Singapore and Asia.

Researchers from the Environmental Engineering Research Centre (EERC), joining forces with industrial experts from Hyflux Ltd, a leading player in water treatment solutions, will work towards improving existing membrane technologies. They will also develop new technologies for water reclamation.

This will complement efforts in Singapore to develop new sources of water to reduce the country's reliance on imported water.

In the case of seawater desalination, advances in membrane technology can significantly lower production costs to make it a more feasible form of water-recycling. Water treated via membrane technology is also more consistent and of higher quality.

The partnership synergises Hyflux's industrial experience and NTU's research capabilities. Hyflux, founded in 1989, is today a leading regional turnkey supplier of water treatment solutions. It is developing Singapore's first seawater desalination plant. EERC, a multidisciplinary R&D centre established by NTU and the Ministry of the Environment, spearheads environmental research programmes.



A clean start: Prof Cheong (left) and Ms Lum formalising the partnership on 14 October 2003

Ms Olivia Lum, Group CEO and President of Hyflux Ltd, said she was glad to partner NTU. "We can certainly make full use of the facilities here."

While Hyflux can tap EERC's sophisticated equipment and capabilities, NTU will, in addition to the research collaboration possible, be able to send its students to Hyflux to gain invaluable work experience.

Said Prof Cheong Hee Kiat, Deputy President of NTU and Dean of the School of Civil and Environmental Engineering: "The goal is to harness technology to reduce the cost of producing potable water in Singapore and the region beyond."

Bioinformatics results in double quick time

Genvea Biosciences and HP working with NTU to speed up research-to-application in bioinformatics; new software-infrastructure for computational biology installed at BIRC

NTU's Bioinformatics Research Centre (BIRC), Genvea Biosciences and Hewlett Packard (HP) have signed a Memorandum of Understanding to establish a software platform and development infrastructure at BIRC.

When completed, it will result in one of the most powerful dedicated facilities for bioinformatics in the world.

The partnership furthers NTU's life-sciences research, which includes a \$12.4 million project launched in March 2002 to establish one of the world's fastest supercomputers at BIRC.

The software platform and development infrastructure will make use of the Genomics Research Network Architecture (gRNA) on existing supercomputers. It is expected to lower the cost of developing software supporting life sciences projects.

"The deployment of Genvea's gRNA platform on the BIRC HP cluster not only improves computing productivity but also reduces the time-to-discovery and accelerates the research-to-application process for computational biology," said Assoc Prof Seah Hock Soon, Dean of the School of Computer Engineering, which hosts BIRC.

gRNA is a programmable software infrastructure. Staff, students and industry players can use it to develop new computational techniques and software tools for the post-genomic pharmaceutical sector.

Under the agreement, Genvea, a leading informatics solutions provider for the life sciences industry, will maintain and support the software infrastructure, which is expected to catalyse *in silico* biology research at BIRC.

In silico biology uses computational algorithms to create complex virtual systems that emulate molecular pathways, cells, and living systems.

Beyond the \$500,000 technology partnership, NTU, HP and Genvea will share critical advances in bioinformatics through collaborative projects.

Supercomputers at BIRC are used to study topics such as protein-interaction, the implications of genes in the immune system, genes and proteins involved in ovarian cancer, and the early identification of stroke, dyslexia, and Alzheimer's disease from brain images.



NTU and Sinomem will market new technologies like these NTU-patented hollow-fibre membranes. From left: Dr Lan, Prof Tay and Dr Wong Fook Sin, Director of IESE's Advanced Membrane Technology Centre

Joint-venture to commercialise membrane technologies

IESE and Sinomem to develop cheaper, more efficient membrane-based solutions for Asian markets

Anticipating a three-fold increase in the regional production of desalinated water, NTU's Institute of Environmental Science and Engineering (IESE) and Singapore-listed Sinomem Technology Ltd have tied up to develop and commercialise membrane technology for industrial applications.

The partnership leverages IESE's membrane-related research expertise and Sinomem's advanced membrane technology and industry experience to meet the regional need for cheaper, cleaner water.

"We aim to replace distillation and evaporation, commonly used techniques for purification, with membranes that can do the same job at a fraction of the cost," said IESE Director Prof Tay Joo Hwa.

The global membrane market has been growing 15% annually, with the strongest growth in China, where the membrane market rakes in several hundred million dollars each year.

Xiamen-based process specialist Sinomem – placed 28th in a recent ranking of the 250 fastest-growing technology companies in the Asia-Pacific – is headquartered in Singapore.

Capitalising on this proximity, IESE and Sinomem will start a joint-venture company to research and develop advanced membrane technologies for water production and treatment applications for the pharmaceutical, chemicals, food, water, and bio-technology industries.

Dr Lan Wei Guang, Founder and Managing Director of Sinomem Technology, said: "Together, we can develop and offer companies customised quality solutions that will help them increase production yields. Not only will these companies be able to lower their overall costs, but our focus on preserving the environment will also help them minimise pollution."

IESE has been developing many exciting, new membrane-based processes, some already patented, that will have niche environmental applications worldwide.

Renesas, CHiPES driving T-Engine

NTU will act as technology resource centre for local and regional companies using TRON in their R&D efforts

The ubiquity of computers has given rise to new platforms such as the T-Engine – an open, standardised platform for embedded systems, which are critical components of mobile devices, electronic equipment, and manufacturing control systems.

Recognising NTU's capabilities in embedded systems hardware, Renesas System Solutions Asia, a subsidiary of Japan's largest semiconductor manufacturer, Renesas Technology Corporation, will work with the Centre for High Performance Embedded Systems (CHiPES) to drive the development of new applications based on the T-Engine.

Specifically, CHiPES will flex its strength in transforming algorithms into architecture, which will give rise to a new generation of embedded systems.

Last October, Renesas System Solutions Asia established the T-Engine Application Development Centre in Singapore. The first such centre outside Japan, it was launched to promote the adoption of T-Engine technology among developers of embedded systems. It also seeks to capture the needs of Asian systems to further enhance the capabilities of the T-Engine.

Intensive R&D on the T-Engine will enable CHiPES to act as a technology resource centre, supporting local and regional



Keen to exploit NTU solutions: (From left) Mr Low Hwee Hwa from Renesas, Mr Yamashiro Osamu, Managing Director of Renesas System Solutions Asia Pte Ltd in Singapore, and Prof Ken Sakamura, Founder of TRON

companies in T-Engine development. Expertise gained through this activity will also feed directly into NTU's Master of Science programme in Embedded Systems, exposing students to new technologies and methodologies in software design for future embedded systems.

TRON, the real-time operating system nucleus of T-Engine, was developed by scientists at the University of Tokyo, led by Prof Ken Sakamura. It is currently the world's preferred embedded operating system.

How to fire imagination

There is no single formula for creating an innovative society, says Mr Tharman Shanmugaratnam, Acting Minister for Education

To succeed in our next phase, we have to push the envelope, expect some mistakes, and tolerate imperfection. This theme ran through Mr Tharman Shanmugaratnam's speech as he delivered the second Nanyang Distinguished Lecture, *Educating the Next Generation*, at the invitation of the Senior Common Room on 7 January.

For Singapore to succeed, we have to nurture a culture of experimentation and provide more space for our young to pursue diverse paths.

"The greatest resource for any country in the future is its creative imagination," he told the University's academic and administrative staff. It is not possible to create entrepreneurs through education. But everyone, not just those in business, have to be willing to use their imagination and innovate in whatever they do. He urged that we nurture among our young the habit of questioning what they learn, and looking for new ways of doing things.

From analytical to experimental

Shift from an "analytical" frame of mind to the "experimental", he advised. Our young must be prepared to think on their feet, and think on the move.

At the same time, we need "a certain creative tension between rigour of learning and independence of spirit".

"You can't study very little and develop thinking skills," he explained. "You've got to study something to a certain level of depth and difficulty to train your mind." That is why there is no easy formula for developing the creative imagination, and a balance has to be maintained in education.



Find ways to help the talented "spring out": His Excellency Mr Tharman Shanmugaratnam, Acting Minister for Education

"High average standards" would not be enough for Singapore's future, he warned, if Singaporeans are too much of the same mould. A system that nurtures exceptional talents, with diverse strengths, is necessary for success in an innovation-driven environment. "The totality of these diverse talents will make a more vibrant and resilient society, more than the totality of a high average in a common area."

Greater flexibility and choice have to be provided in education. We should encourage students to follow their passions, and give them more space to do so in schools and tertiary institutions. We cannot groom an innovative generation if our young only study for examinations, or choose only what they think is easiest to score in.

He closed with a call to develop a team spirit among our young even as we seek to groom strong individuals. Collaboration is the key to successful endeavour, even in research; all major advances in knowledge come out of "deeply collaborative engagements", not solo efforts.

He added: "The really strong individuals are not individualists, but those who want to contribute to society, to something larger than themselves."

Nantah Vice Chancellor's sweet homecoming

For one who has not set foot on the Yunnan Garden campus for many years, Dr Rayson Huang remembers most parts of the University with exceptional clarity – sometimes down to the detail.



Flashback: Dr Huang views a picture of himself with Queen Elizabeth II at the Chinese Heritage Centre. The Queen visited Nantah in 1972

When NTU hosted the former Nantah Vice Chancellor (1969 to 1972) for a two-day visit on 12 and 13 November last year, he was unfazed by the changes on campus, and picked out many of his favourite places – such as the picturesque Yunnan Garden and the restaurant at the old library that used to be where the Administration Annexe now stands.

As he visited other familiar landmarks like the Chinese Heritage Centre, where his office was located, and the President's Lodge, where he stayed during his term of service, he bantered about the good old Nantah days. It was easy to forget that Dr Huang is a good 83 years of age.

Perhaps, like the ties between NTU and Nantah, it takes more than just words to describe the bond between Dr Huang and the University. Indeed, when asked how he felt about revisiting the campus, he said: "I am awed beyond words."

For a truly sweet homecoming, Dr Huang had dinner with old friends and former colleagues from Nantah at the President's Lodge. He presented his memoirs to President Su Guaning as a gesture of his thanks for the wonderful reception.

A slew of original, and often ingenious, ideas characterised 2003 Technopreneur 21. Judges and professors alike were bowled over

After five weeks of hectic brainstorming and innovating, 650 second-year students from the School of Mechanical and Production Engineering (MPE) showcased 55 cool inventions at the finale of Technopreneur 21 (T21) on 19 December.

T21, organised annually by MPE, challenges students to create new technology-based products and services with both social and economic relevance.

The students then pitch their merchandise to an esteemed panel of "roving" judges from the private sector, who appraise the innovations based on their potential market value/societal impact, technological inventiveness, cost, potential for spin-off products, and packaging/aesthetic appeal.

Dr Sivakumar Siva, Chair of T21, said: "This batch probably is by far the best. Many have moved away from heavy technology to electronics-based inventions, which is in line with global trends."

T21 received the prestigious *Curriculum Innovation Award* from the American Society of Mechanical Engineers in 2000.

This year's programme was sponsored by Singapore Technologies Engineering Ltd and co-sponsored by Motorola, NFK Equipment Pte Ltd, and Farnell Components Pte Ltd.



Integrated trolley system

Tired after a long flight? No worries – this height-adjustable trolley not only jacks up your luggage, but also boasts a touch screen that displays flight schedules and tourist information. *Consolation prize winner, Automotive & Transportation category.*

Creativity unlimited!



Beep beep! Pedestrian alert!

SAF_IU is a warning system installed at zebra crossings to prevent accidents. Motion sensors at both ends of the crossing detect pedestrians. When a car approaches the zebra crossing, and a pedestrian is detected, the sensors send a microwave signal to the car's In-vehicle Unit (IU), which gives off two long beeps. The system does not affect regular IU operation. *First prize winner, Safety & Environment category.*



Aerobuoy

Don't let weak muscles get in the way of saving a life. Use this gas-powered device which can shoot an auto-inflating lifebuoy to a drowning person as far as 45 metres away!

Wear your mouse
Why use a conventional mouse when you can have the *G-mouse* – a neat mouse that's worn like a glove! The job gets done with three fingers – the thumb, index and middle fingers. A mouse pad is not needed, as this function is taken over by the thumb. No harm using your body as the pad, though! *Third prize winner, Design category.*



You've got mail!

Tired of opening your mailbox only to find it empty? Then you'll love the *IGM2003 Smart Mailbox System* for smart homes and new HDB flats. An LED bulb on the cover of the mailbox lights up when mail is inserted, so you know when *not* to open it. *First prize winner, Automation category.*

Flexible walker

The *Stair Rising Walker* has legs that can be bent on demand, meaning it can help the elderly or weak walk up stairs. Need a rest after an exhausting climb? Just sit on the detachable seat of the walker.



Armed with a good network of contacts, requisite skills, and newfound confidence, graduates of the Technopreneurship and Innovation Programme are charging ahead to build their companies

Getting down

They were busy hatching business plans and growing their start-ups last November. But the 47 graduates of the second Technopreneurship and Innovation Programme (TIP) tore away from work to attend a special graduation ceremony, during which they received graduate diplomas from NTU and the University of Washington (UW).

It was certainly a great occasion to bond again as a kindred spirit. And distinguished guests, including Mr Teo Ming Kian, Chairman of the Economic Development Board, fuelled this fellowship with encouraging calls to action.

TIP, jointly administered by NTU's Nanyang Technopreneurship Centre (NTC) and UW, is a four-month full-time programme covering the entire venture creation process. It offers stimulating activities beyond the classroom, such as networking seminars, Entrepreneurship Speaker Series sessions, and corporate visits.

The second run – from 2 June to 3 October – included a week of seminars at Stanford University and visits to corporations and start-ups in Silicon Valley. This was followed by a five-week programme at UW which culminated in a \$30,000 business plan competition. The TIP students found the US segment particularly inspiring.

"It was fantastic," said TIP Valedictorian Jan Ho. "I enjoyed myself thoroughly and really learnt a great deal. The spirit of volunteerism shown by the Americans has inspired me, and all the lecturers were very keen to share with us."

Said a visibly impressed Prof Kim Yongmin, Professor and Chair of UW's Department of Bioengineering: "The students took the challenge of creating viable business plans very seriously. The judges said their plans were among the best they had ever seen."

All TIP participants are automatically considered for zero-bond scholarships worth up to \$20,000. For more information on TIP, go to www.ntu.edu.sg/ntc.



Still in a biotech environment, except that he now calls the shots



Yinan in Seattle during the US segment

Left China to join TIP

Zong Yinan travelled thousands of miles to join TIP, after hearing about it from a friend in Singapore. The former Assistant to the President of a venture capital company in Shanghai said: "I wanted to learn how to start and run a business outside the PRC." Yinan, who has a Bachelor of Arts degree with a major in English for Science and Technology from Xi'an Jiaotong University, intends to start small in Singapore and take her business to her homeland. TIP has given her a valuable network of business contacts, and has made her a stronger person. "During the programme, I realised how little I knew about doing business." She found the US stint exhausting but enjoyable. "TIP is a gateway to the real business world," she declared.

From scientist to CEO

Dr Saw Lin Kiat, 28, had always wanted to start his own company. So he left his job as a scientist with a local research institute to join TIP. His first job was with an American biotech company. "The fact that I could acquire the necessary training within just four months appealed a lot to me," said Dr Saw, whose PhD is in Chemical Engineering. Interestingly, Dr Saw's venture was born even before the course started. "I met two of my business partners during the interview session for TIP. Both are graduates of the first TIP. Together with my ex-colleague and friend, we formed the company even before I graduated from the programme!" Dr Saw is CEO of Inflexion Corporation Pte Ltd, a biotech start-up focused on providing medical diagnostics for prevalent Asian diseases. He expects the company to launch its first product for the diagnosis of *nasopharyngeal carcinoma* in January 2004. "Due to the timing of the start-up, I have been able to relate a lot of my new knowledge to the running of the business. Now I can appreciate all aspects of business, instead of just technology development," he said.

to business!



An affordable luxury, says Applestiz founders (from left) Jann, Kelvin and Jan



Playing his cards right

Plans bearing fruit

TIP has transformed TIP 2003 valedictorian Jan Ho Hwee Shi, who performed very well in the course. She joined the programme, fresh out of her Accountancy studies, after hearing about it during a stint as Corporate Relations Officer for the Students' Initiative For Technopreneurship (SIFT), an NTU organisation. Jan has now started her first venture with two TIP coursemates, marketing *Applestiz*, a novelty item she discovered on the US stint of TIP. "*Applestiz* is about gourmet coated apples that will be an affordable luxury to the majority of consumers here," she said. "Our key competitive edge is having a team of energised, passionate people." On the three most useful lessons she has gained from TIP, Jan offered: "A strong team is a must; a good strategy is important; and cash flow, cash flow, cash flow!" She added: "I now see things from a more strategic perspective and have learnt to plan and execute ideas. A problem is no longer a problem but a contingency we would have predicted in our planning stage."

The magic of business

Wee Kien Meng – or Mr Bottle to the kids – is an inveterate magician. He got hooked on magic at five, joined the local magic society at 17, started performing at charity shows soon after, and now runs his own business, which includes performing magic shows overseas, such as in Hong Kong. Along the way, he picked up a Bachelor of Arts (Psychology) degree. The SARS outbreak, which affected his business, led him to rethink his business strategy, and with a long-term view in mind, he joined TIP. "In class, Prof Tan Teng Kee (Director, NTC) would always talk about making millions of dollars and making the company scalable. This never really came to my mind before. I thought, at least, for magic, it is a matter of getting better and charging more money. I began to think of ways to create intellectual property for the company and barriers to entry, for example, by creating characters and customising shows. The programme puts a lot of things in perspective and I am clearer about my goals." Kien Meng is now working to increase business revenue to grow his company, Magicians Network (Singapore). "We have already earmarked a few budding magicians to join the company." He piped: "Magic tells me that nothing is impossible in life!"

The RACE to exploit



The Research and Commercialisation Endeavours (RACE) Advisory Panel visited NTU on 27 October 2003 to familiarise themselves with our latest research thrusts and infrastructure, paving the way for future research and entrepreneurial partnerships. RACE, inaugurated in 2003, is a joint initiative of Singapore's Economic Development Board (EDB), NTU, the National University of Singapore, and Exploit Technologies. It aims to create new industries by accelerating the commercialisation of discoveries and inventions by the local research community. The RACE Advisory Panel comprises distinguished industrialists, venture capitalists, and entrepreneurs.

Juicy science!

Using simple chemicals to process strawberry juice, participants of the NTU-JC-DSTA-DSO Challenge have fun isolating DNA polymer strands from strawberries. "This project takes them into the new field of biosynthesis, where materials chemists synthesise biopolymers using DNA itself," explained NTU's Assoc Prof Subbu Venkatraman. The students were among 270 budding scientists from the 16 junior colleges (JCs) and two centralised institutes in Singapore who travelled to the "materials frontiers" during a five-day residential programme on campus last November. They performed experiments on materials engineering, visited research facilities, attended seminars, and played mind-bending games with Mensa Singapore (NTU Branch). During the school vacation, they worked in teams of 15 under the guidance of NTU professors to develop applications for advanced materials. Their IT-based innovations will be showcased at the Challenge finale on 14 February 2004, where the best seven projects will be awarded. The NTU-JC Challenge, launched in 2000, engages pre-university students in a cutting-edge research climate, encouraging innovation and teamwork. This year's Challenge is co-organised with the Defence Science and Technology Agency (DSTA) and DSO National Laboratories (DSO).





Underground activity near campus?

The inside story: Dr Zhao Jian (second from left) explains the geological formation of Jurong Island to Norwegian Science and Technology University professors and a JTC representative

NTU has been leading a feasibility study for JTC to examine the viability of an underground oil storage complex on Jurong Island

Jurong Island, home to large oil refineries and petrochemical companies, could expand downwards – via man-made caverns for oil and gas storage. These are plans being drawn up by JTC Corporation, the nation's largest industrial developer and landlord.

Researchers from the School of Civil and Environmental Engineering (CEE) have been helping JTC Corp assess the quality of the rock below Jurong Island since 2001.

If the go-ahead is given, construction of 32 underground hydrocarbon caverns – each 125,000m³ in size and capable of storing up to 4 million m³ of oil and gas – could start as early as June this year.

If built, the storage complex would be among the largest of its kind in the world. Caverns for crude oil and LPG have been built in countries such as Norway, France, UK, and Korea.

The NTU team, awarded a \$300,000 R&D contract as Technical Advisor, will soon present its findings on the suitability of an 80-hectare site on Jurong Island for excavation.

"We have been building on our strengths in underground technology and rock engineering, so it came as no surprise when JTC Corporation asked us to coordinate the study for their oil and gas storage cavern project," said chief investigator Dr Zhao Jian, an internationally prominent academic who is Vice President of the International Society for Rock Mechanics.

NTU has been leading underground space studies since 1990.

It has conducted feasibility studies in the Bukit Timah area for the Defence Ministry's Underground Ammunition Facility caverns project and in the Kent Ridge area for the Underground Science City project.

In the case of Jurong Island, going underground makes economic sense and frees up land for commercial projects. Safety is another plus – there is little risk of explosion due to accident, leakage or attack, dangers associated with most surface storage systems.

"We've found that the rock mass in the western part of Jurong Island is of fair to good quality, and suitable for cavern spans of 20m each," said Dr Zhao, whose geological study of the Sembawang Hot Spring earned him several TV appearances in 2002.

Asia's young inventors



Kudos to two of Asia's brightest inventors

– Eileen Fong (above) and Kumar Selvarajoo, who made it to the finals of the 4th Young Inventors Awards, organised by Far Eastern Economic Review. Eileen's work on "Biomimetic Processing of Nano-Structures", supervised by Assoc Prof Ma Jan (pictured above), establishes a mechanistic understanding of biomimicry – the art of using technology to mimic biological systems – and extends the theory to the forming of nanostructures. Kumar's breakthrough is the application of computational simulations used in aeronautical engineering to the interacting systems of the human body, such as the nervous and digestive systems. His mathematical model can predict how new drugs affect human cells.

Clean power from fuel cells

A fuel cell test and development project has been launched, which will see lighting in three HDB carparks in Pasir Ris powered by fuel cells. NTU is Technical Advisor to the public agencies involved in the project, namely the Housing and Development Board, Economic Development Board, and National Environment Agency. The first system is being installed. Fuel cell systems typically generate clean electric power by combining hydrogen and oxygen (in air) to produce electricity efficiently without damaging the environment. While the technology for doing this is already available, the process is still not economically competitive with conventional power plants. Through an Internet link, the researchers will evaluate real-time operating data from the system being tested, and compare and validate the results from laboratory-scale experiments and computer models of the fuel cell and fuel reforming system. "This will enhance our ability to contribute to the field, and engage in joint R&D with fuel cell companies in the future," said Assoc Prof Ho Hiang Kwee, a key member of the Fuel Cell group at the School of Mechanical and Production Engineering.

Stunning New York debut

Two student-produced documentaries screened at 37th New York Expo of Short Film and Video; they are first Singapore entries to win Jury Awards

Two awards came as early Christmas presents for some communication studies graduates whose documentaries, prepared as final-year student projects, beat intense competition to win Jury Awards at the 37th New York Exposition of Short Film and Video.

The Expo, America's longest-running annual festival of independent short films and videos, receives about 700 entries from around the world each year. It has showcased the early work of such filmmakers as George Lucas, Spike Lee and Martha Coolidge.

The Singapore Film Commission has no records of other Singaporean films ever screened at the New York Expo.

Jury Award winner *Radio station forgot to play my favourite song*, produced by Gavin Chelvan, Siau Che Sheng and Billy Tan, chronicles the state of contemporary rock music in Singapore. It features inter-

views with renowned radio DJs, music critics, producers, and musicians.

Adam in heels, the other winner from NTU, explores the psyche of four male cross-dressers. It concludes that there is no single explanation behind the phenomenon of cross-dressing.

Yan Kit Ying, Leong Tarn Meng, Jasmine Teo, and Low Siok Hwee produced the documentary under the supervision of Ms Nicole Draper.

Dr Pieter Aquilia, the project supervisor for *Radio*, said critics have jumped to sing praises. "A visiting professor who is an independent film festival curator in the States said point-blank, this is world-class filmmaking, and she's right."

She added that students from the Electronic and Broadcast Media programme have consistently won international acclaim for their work, but this is the first time they have won prizes at the prestigious New York festival.



Dino of Force Vomit gives his best rock star wink for the camera (still from "Radio station forgot to play my favourite song")

Grand entrance at World Cup

NTU edges out other first-timers like France, Germany, and Netherlands at SIFE global finals

Neophytes make a grand entrance if they are from NTU! That was what happened when our students won the coveted "Rookie of the Year" award at the SIFE World Cup in Mainz, Germany, where 37 countries were represented.

The award is given to first-timers to the SIFE (Students In Free Enterprise) competition, which recognises youth who apply entrepreneurship skills creatively in community projects.

The October victory for the students, who had won the Singapore leg of the SIFE competition in August, was sweet; they beat teams from France, Germany, Netherlands, Slovenia, and Kenya.

The six community projects they championed – in between classes at the Nanyang Business School and School of Computer Engineering – targeted young people, including special-needs children. All aimed to teach business, entrepreneurship, and other life skills.

So what impressed the judges? The synergy they showcased in creative ventures like baking, advergaming, financial games, and entrepreneurship

campus that impart business concepts and entrepreneurial-savvy.

Said Amrita Vijay Kumar, a key driver: "We married our backgrounds and talents to start the NTU SIFE umbrella organisation. Now it's time to nurture it, and do even more for the community."

Added Jack Tan: "It sure feels good to continue the winning streak that NTU has been enjoying at international competitions this year. Our schoolmates won the L'Oreal 'world cup' in May,

Winners through and through: A stunning world cup win in Germany, but it's the caring movement they started on campus that earns them top marks



More awards for creativity...

Seven outstanding communication studies students won Annual Student Crowbar Awards last year for their creativity in marketing communication and design. The awards were given by the Association of Accredited Advertising Agents Singapore.

and we thought we could bring home something, too!"

Joining Amrita and Jack in Germany to fly the Singapore flag were Lee Lit Hun, Gary Tan, Dev Ramnane, and Anand Shekhar. Kudos to our champs!

Can run, but can't hide!

Students' buddy-finder phone application clinches top prize in island-wide contest

Use your handphone to find your best friend. In fact, get his or her exact location and follow the quickest route there! All this is possible with an innovative buddy-finder application developed by some computer engineering students.

"Catch me... you can", the first application of its kind in Singapore, certainly impressed the judges of the Motorola Buddy Finder Challenge Competition, organised by ST Mobile Data and Motorola. Inventors Atul Harkisanka, Neha Kumar, Rahul Goela, and Shilpa Arora won the first prize!

Their application for Motorola GPS-enabled iDEN handphones, developed under the mentorship of Asst Prof Yow Kin Choong, stores the user's GPS (Global Positioning Coordinates) on a centralised server and maintains a contact list of online buddies whose whereabouts can be displayed on a Singapore map.

There's even a dating service which locates potential dates in the same district. The user can call up a map showing the nearest MRT station and nearby attractions, and ask for directions to these places.

For greater commercial viability, the students incorporated a distinctive advertising ticker that runs across the top of the interface, informing users about the latest promotions in their area.

The team won \$2,000 and will have the satisfaction of seeing their application being demonstrated island-wide, as Motorola plans to showcase it during the launch of their new phone models.

Location, location, location! Inventors (from left) Rahul, Neha, Shilpa, and Atul have got it down pat



Butterfly h(e)aven

The Plain Tiger (above) regularly visits the butterfly garden in front of NIE's Science block. Bordered by secondary forests, NTU is a haven for nature. **(Inset)** Kids learning about butterflies through fun games, and NIE Director Prof Leo Tan launching the garden on 18 November

NTU and NIE professors, together with the NIE Green Club, have nurtured a beautiful butterfly garden on campus, which has been attracting many Plain Tiger, Dark Glassy Tiger, and Common Tiger butterflies.

To woo the winged beauties, they planted more than 16 butterfly-attracting plant species in the garden. These are either food for caterpillars or a source of nectar for the wispy adults.

Some, like the Rattlebox Pea (*Crotalaria sp.*), are grown because they produce chemicals alluring to butterflies.

Project leader Assoc Prof Vilma D'Rozario from Psychological Studies, NIE, said the butterflies probably come from the undeveloped land and secondary forest patches around campus.

"We really didn't expect this much activity after just three months of planting work," she said, referring to the colonies of frogs, spiders, dragonflies, moths, beetles, bees, and praying mantises that have joined the butterflies.

Originally started for staff and teacher-trainees to participate first-hand in the greening of NTU, the garden now also serves as a learning resource for schools.

Extra! Extra! ... Extra! Extra!

News and views, and a colourful peek at NTU! All you need is a copy of *The Nanyang Chronicle*, packed with juicy stories by aspiring journalists from the School of Communication and Information. These Chinese undergraduates – part of a group of 43 top students from Beijing Language University, Beijing Post and Communication University, Beijing University for Foreign Studies, and Tsinghua University – were certainly drawn in. They were in NTU on 5 December 2003 under the 1st Sino-Singapore Undergraduate Exchange Programme, a collaboration between the Education ministries of the People's Republic of China and Singapore. Their visit included a campus tour (led by a 50-strong



Singapore contingent), lively seminars and discussions, and a warm welcome from NTU President Prof Su Guanng at the new Nanyang Executive Centre.

Three new Vice Presidents



Mrs Pek Siok Ching
Vice President (Plans)



Mrs Angela Lim Sau Ting
Vice President (Human Resources)



Prof Tony Woo Cheng Hsiang
Vice President (Research)

Promotions

To Associate Professor

School of Civil and Environmental Engineering: Asst Prof Lu Yong, Asst Prof Show Kuan Yeow; School of Electrical and Electronic Engineering: Asst Prof Chau Lap Pui, Asst Prof Chen Shiun, Asst Prof Chen Tupei, Asst Prof Chu Yun Chung, Asst Prof Goh Wang Ling, Asst Prof Kantisara Pita, Asst Prof Daniel Lau Shu Ping, Asst Prof Ponnuthurai Nagaratnam Suganthan, Asst Prof Shen Zhongxiang, Asst Prof Sun Changqing, Asst Prof Susanto Rahardja, Asst Prof Tan Chik How, Asst Prof Tan Yap Peng, Asst Prof Wang Peng, Asst Prof Yu Siu Fung, Asst Prof Zhang Qing; School of Mechanical and Production Engineering: Asst Prof Cai Yiyu, Asst Prof Chen Chun-Hsien, Asst Prof Li Qing, Asst Prof Liao Kin, Asst Prof Liu Erjia; School of Computer Engineering: Asst Prof Lin Feng; Nanyang Business School: Asst Prof Anilkumar K Samtani, Asst Prof Mahmud Hossain, Asst Prof Tan How Teck, Asst Prof Tsui-Auch Lai Si; School of Biological Sciences: Asst Prof Julien Lescar

To Senior Officer (Special Grade)

Mr Andy Tan Ngee Huat, Office of Development and Planning

To Senior Officer (Grade 1)

Mrs Tan Sock Leng, Office of Academic Services

To Senior Officer (Grade 2) or equivalent

Mrs Tan-Goh Hwee Oon, Office of Finance; Ms Wu Zhen, School of Humanities and Social Sciences; Mr Koh Swee Chye, Centre for IT Services

To Senior Officer (Grade 3)

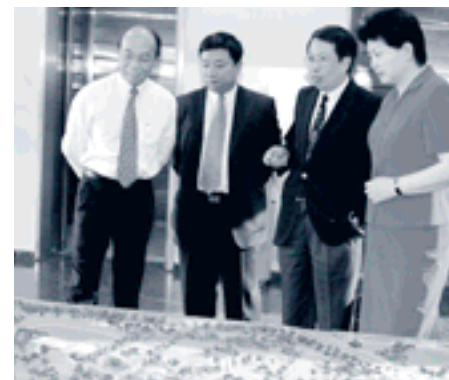
Mr Liew Sai Weng, Office of Estate and Amenities; Ms Loh May Ling, Nanyang Business School; Mr Soong Swee Kit, Centre for Educational Development

Visitors

During the period October to December 2003, the University received the following distinguished visitors:

- 8 Oct** Dr Martha Piper, President, University of British Columbia, Canada
- 9 Oct** HE Majid M Shabestari, Iranian Ambassador to Jakarta, Iran
- 17 Oct** Mr Chiang Chie Foo, Permanent Secretary (Education), Ministry of Education, Singapore
- 20 Oct** Prof Stanislaw Mankowski, Rector, Warsaw University of Technology, Poland
- 22 Oct** Prof Hermann Mettler, Rector, Hochschule fuer Technik Rapperswil, Switzerland
- 1 Nov** Dr David Baltimore, President, California Institute of Technology, USA
- 5 Nov** Mr Le Cong Co, President, Duy Tan University, Vietnam; Mr Richard D Filley, Founder and Director, Global Tech Leaders Symposium, International Corporate Leaders Programme, ASU Corporate Leaders Programme
- 6 Nov** Mr Ganbyamba, Member of Parliament of Mongolia, Deputy Chair of the Mongolia-Singapore Parliamentary Group, Mongolia
- 13 Nov** Lord Ernest Ronald Oxburgh and Mr Dennis Roberson, Board Members, Science and Engineering Research Council, Agency for Science, Technology and Research
- 18 Nov** Dr Filippo Neri, DSO Distinguished Fellow
- 15 Dec** Mr Ng Bok Eng, Chairman, Ng Bok Eng Holdings Pte Ltd
- 16 Dec** Prof Ma Dexiu, Chairman, Shanghai Jiao Tong University Council

During this period, the University also received visiting delegations from Daejeon Health Sciences College and Jangan College, Korea; National University of Defense Technology, Harbin Institute of Technology, and Henan Province, PRC; and the Swiss Science and Economy Delegation, Switzerland.



Shanghai Jiao Tong University Council Chairman **Prof Ma Dexiu** (extreme right) explores a model of our campus. Over at the School of Electrical and Electronic Engineering, DSO Distinguished Fellow **Dr Filippo Neri**, an electronic warfare expert from Italy, views sophisticated Monolithic Microwave Integrated Circuits (MMIC) facilities



New Appointments

Mrs Pek Siok Ching, Vice President (Plans)
Mrs Angela Lim Sau Ting, Vice President (Human Resources)
Prof Tony Woo, Vice President (Research)
Mdm Chia Oi Leng, Director, Infrastructure Development
Dr Alex Yu Hou Cheong, Director, Innovation and Technology Transfer Office
Assoc Prof Er Meng Joo, Director, Intelligent Systems Centre
School of Humanities and Social Sciences: Assoc Prof Lee Guan Kin, Head, Division of Chinese; Asst Prof Quah Sy Ren, Deputy Head, Division of Chinese
Centre for Chinese Language and Culture: Prof Chew Cheng Hai, Advisor; Assoc Prof Lee Guan Kin, Director; Assoc Prof Crossland-Guo Shuyun, Deputy Director

Re-appointments

Prof Lim Mong King, Deputy President
Prof Er Meng Hwa, Deputy President
Prof Cheong Hee Kiat, Deputy President
Prof Tan Hong Siang, Director of Research



It rained words and confetti: President SR Nathan launched the tournament with a strike of the gong



That winning feeling: Middle Temple's moment (above and left)

World Universities Debating Championships (Worlds) 2004

Didn't take part, but fantastic win!

As tournament organisers, NTU could not participate in Worlds. Yet, we brim with pride at the fantastic showing by computer engineering alumni Amit Bhatia and Rajesh Krishnan, both 23, who made Singapore history by advancing to the finals of Worlds 2004. Although they represented the Singapore Institute of Management, where they are pursuing a postgraduate diploma programme in financial management, both were formally trained and groomed as debaters while studying at NTU. No other Asian team had ever been ranked within the top 16 teams, and the duo were among the top four teams of the elite tournament!

Feat of organisation

Mr SR Nathan, President of Singapore, who launched the debates, was so impressed that he has invited the organisers to tea at the Istana! No wonder. More than 100 NTU students, led by tournament convenor Namrata Verma and advisor Assoc Prof Khong Chooi Peng, slogged for two years to stage Worlds 2004 since NTU won the bid for it in 2001. The record-breaking turnout (900 students!) could not have been achieved without hard work and a strong debating culture at NTU.

Our 4th international debating event

NTU is the only Singaporean university involved in organising large international debating championships. We spearheaded and hosted the first All-Asian Intersvarsity Debating Championships in 1994 and again in 1997. In 2001, we hosted the Australasian Intersvarsity Debating Championships (Austral), which attracted 84 teams. Worlds 2004 is the jewel in the crown.



Pitched battle? Silver-tongued alumni Amit (below left) and Rajesh – the first Asian team to “break” into a Worlds final!



Top debaters from across the globe converged under one roof when NTU hosted the world's largest – and most prestigious – debating championships from 27 December 2003 to 3 January 2004. Here are some highlights in pictures. More on page 5.



Full house for the final showdown at the Victoria Concert Hall