NUS Formula Race Car in top 20 ranking at international FSAE competition

SIXTEEN STUDENTS from NUS Faculty of Engineering did Singapore proud by being the only team from Asia to be in the top 20 ranking in the prestigious international intervarsity Formula Society of Automotive Engineers (FSAE) competition. Held at the Michigan International Speedway in USA, the NUS FSAE team took 19th place in the race car competition which had a total of 119 registered teams.

Students from top universities worldwide had to design and build their car from scratch for the competition. Over three days, the teams were judged on areas such as Formula race car engineering design, marketing presentation and four dynamic tests, including a 22km endurance race to test the performance, reliability and durability of their race car.

The NUS FSAE team almost missed the competition due to a precautionary suspension on official travel to affected countries following the global Influenza A (H1N1) situation. Fortunately, six days before the competition, the travel suspension was lifted and the team proceeded with their trip to the United States for the FSAE competition.

Faculty Advisor for the NUS FSAE Race Car project Assoc Prof Seah Kar Heng said: “The 2009 NUS Formula SAE team has built a fantastic car, as proven by the competition results. If we had not come, we would never know how good the car is and its educational value would have been lost.”

At the competition, the NUS FSAE team also bagged the 6th prize in the presentation segment and came in 16th in the 22km endurance race.
TEN DISTINGUISHED educators, researchers and professionals were paid tribute at this year’s University Awards. Honoured for their distinction in areas of education, research and service to the University, these exceptional individuals have shown fervour and dedication in their work and have made notable contributions in their respective fields. At the award ceremony held on 24 April 2009, NUS President Tan Chorh Chuan said: “Each of them has recognised the potential to produce real impact and value in their teaching, research or service, and in the people around them. Acting boldly and with passion, they have unleashed that potential.”

To further enhance the University’s learning environment, the NUS Teaching Academy is established with the aim of fostering a strong culture of teaching excellence, adding to the ongoing efforts to enhance the quality of an NUS education. Tapping on the University’s best educators, the 18 members of the Academy are previous recipients of the Outstanding Educator Award – they will drive various projects, including developing new educational thinking and initiatives aligned with the University’s vision and mission, and serve as mentors to future generations of educators.

In the ongoing pursuit of excellence, NUS has also scored accolades in other areas. At this year’s Shell Eco-marathon in Germany, the NUS eco-car moved up 13 positions from last year’s position to rank 5th in the competition. Also racing their way up the international rankings is the NUS Formula Society of Automotive Engineers (FSAE) team from the Faculty of Engineering – it was the only team from Asia to be ranked in the top 20 at the prestigious inter-varsity FSAE competition in USA.

Another remarkable achievement was attained by two researchers from the NUS Centre for Quantum Technologies. Dr Murray Barrett and Mr Kyle Arnold have successfully achieved the “Bose-Einstein condensation”, an important phenomenon in many areas of physics and currently the subject of intense theoretical and experimental study. This is a significant local achievement that not only raises the nation’s standing in the league of experimental atomic physics, but provides local researchers with the most sophisticated tools to investigate the quantum properties of matter.

In April this year, NUS also hosted the State Councillor of the People’s Republic of China, Her Excellency Madam Liu Yandong. During the visit, Madam Liu expressed her admiration for NUS’ status as an attractive and competitive world-class university. She also noted that the strong bilateral relations between Singapore and China serves as the foundation for close cooperation and exchange between NUS and several Chinese universities.
NUS HONOURED 10 outstanding individuals at University Awards 2009 for their excellence in education, research and service to the University. This year’s recipients have set new standards in transformative education, research and service dedication.

Speaking at the award ceremony held at the University Cultural Centre on 24 April 2009, NUS President Prof Tan Chorh Chuan said: “The passion, boldness and achievements of the University Award recipients inspire us to reach even higher, propelling NUS to the next level of excellence. In doing so, we can help shape the future through thought-leadership and transformative global education and research.

He added: “As educators, our goal and responsibility is to help our students discover their latent talents and to unleash the potential within. And to do this, we need to stretch them, to challenge them intellectually and to take them out of their comfort zone so that they can grow as individuals.”

Prof Tan also said that the environment and support in NUS for research and scholarship is getting better and better – faculties are tackling tougher research questions which have the potential to unlock high-impact insights and discoveries.

Introduced this year was the Outstanding Partner in Research Award which recognises individuals who have made exceptional accomplishments in his or her research field, and achieved highly-significant contributions in enhancing the research reputation of NUS.

The annual University Awards honours and recognises the best in NUS for their consistently-outstanding performance and resolute commitment. Eight recipients were cited this year for excelling in education and research; one was awarded for Outstanding Service and another conferred an Emeritus Professorship.

OUTSTANDING EDUCATOR AWARD
Assoc Prof Goh Say Song, Department of Mathematics at the Faculty of Science, is involved in the formulation, implementation and evaluation of teaching.

Assoc Prof Kenneth Paul Tan, Lee Kuan Yew School of Public Policy, engages in various aspects of tertiary education – from curriculum development and change to creating opportunities for international students to interact with Singapore leaders.

OUTSTANDING RESEARCHER AWARD
Prof Wong Tien Yin, Department of Ophthalmology at the Yong Loo Lin School of Medicine, has led groundbreaking research into the role of retinal imaging to further understand the mechanisms and pathways of diseases, including diabetes. He is widely credited for retinal examinations becoming increasingly common in international clinical guidelines and their value in identifying risk for diseases.

YOUNG RESEARCHER AWARD
Assoc Prof Markus Wenk, Department of Biochemistry at the Yong Loo Lin School of Medicine & Department of Biological Sciences at the Faculty

IN CONJUNCTION with the University Awards 2009, an education think-tank drawing on the excellence of NUS educators has been set-up. The NUS Teaching Academy is aimed at contributing to key educational processes within the University.

“The Teaching Academy will draw on the very best teachers in our University to help drive NUS’ education to new heights of excellence, and play a critical role in shaping the University’s policies and directions in education,” announced NUS President Prof Tan Chorh Chuan.

Noting that the Academy will boost ongoing efforts in improving the quality of NUS education, NUS Deputy President (Academic Affairs) & Provost Prof Tan Eng Chye, said: “By enabling our exemplary educators to share their expertise and innovative teaching methods with the University community, we hope to enhance the learning environment at NUS.”

The Teaching Academy will comprise winners of the University’s Outstanding Educator Award as well as elected faculty who have contributed significantly to education in NUS. The Fellows will spearhead efforts in promoting excellence in teaching and learning at NUS, and provide leadership in educational initiatives such as teaching and learning master-classes, and mentorship schemes among other roles. The Fellows will also serve as ambassadors and connectors for the University and the NUS Centre for Development of Teaching and Learning. Beginning with 18 Fellows, there are plans to increase the number to 30 in the next five years.

One of the Academy’s first tasks will involve the development of new educational thinking and initiatives in line with NUS’ Global-Asia strategy. NUS Business School’s Assoc Prof Jochen Wirtz, who is also the Academic Director of the UCLA-NUS Executive MBA Program and a Teaching Academy Fellow, said: “There are a lot of common issues in teaching and learning which cut across faculties, presenting opportunities for cross-learning and cross-fertilisation amongst the various faculties and departments.”
He went on to serve as the Chief Executive Officer and Chief Planner at the Urban Redevelopment Authority (URA) (1989 to 1992). During his time at the URA, he oversaw and completed the revision of the Concept Plan which contributed to Singapore’s development into a vibrant global city.

On his association with NUS, Prof Liu said: “I am happy to be involved with NUS on academic matters, campus planning and architecture. It is a privilege and pleasure to see NUS growing from strength to strength.”

He hopes that through professional practice, he will continue to “push the boundaries of urban planning, environmental technologies and architecture in the interest of sustainability, liveability and beauty.”

Outstanding achievers recognised at NUS University Awards 2009

OUTSTANDING ACHIEVERS: (Back row, from left): Assoc Prof Ng How Yong, Assoc Prof Mansoor Bin Abdul Jalil, Assoc Prof Goh Say Song, Prof Mohan Balasubramaniam (on behalf of Prof William Chia), Prof Hew Choy Leong, Prof Liu Thai Ker, Prof Wong Tien Yin, Assoc Prof Kenneth Paul Tan, Assoc Prof Markus Wenk and Assoc Prof Melvyn Sim. (Front row, from left): NUS Deputy President (Administration) Mr Joseph Mullinix, NUS Deputy President (Academic Affairs) and Provost Prof Tan Eng Chye, NUS Board of Trustees member Mr Chandra Mohan Nair, Pro Chancellor Mr Ngiam Tong Dow, NUS Board of Trustees Chairman Mr Wong Ngit Liong, NUS President Prof Tan Chorh Chuan and NUS Deputy President (Research and Technology) Prof Barry Halliwell.

of Science is well-known for his research work in the field of lipidomics, or the study of pathways and networks of cellular lipids in biological systems.

Assoc Prof Ng How Yong, Division of Environmental Science & Engineering at the Faculty of Engineering, is highly regarded as being among the top 100 researchers in his field of physical and chemical processes; membrane processes for water quality control and water reuse; environmental microbiology; and biological processes for waste water treatment.

Assoc Prof Mansoor Bin Jalil, Department of Electrical & Computer Engineering at the Faculty of Engineering, has some 100 journal papers on nanotechnology and condensed matter physics to his name. He has had more than 300 citations in the last five years.

Assoc Prof Melvyn Sim, Department of Decision Sciences at the NUS Business School, is a noted researcher for his work in Robust Optimization theory and applications.

OUTSTANDING PARTNER IN RESEARCH AWARD

Prof William Chia, Adjunct Professor at the Department of Biological Sciences at the Faculty of Science and Temasek Senior Investigator of the Temasek Life Sciences Laboratory, has been working on high impact research in neural development and asymmetric cell division for over two decades. His findings have had important implications for stem-cell biology and neural disorders.

OUTSTANDING SERVICE AWARD

Prof Liu Thai Ker, Adjunct Professor at the Lee Kuan Yew School of Public Policy, is a pioneer in the implementation of public housing and formulation of a vision for the urban development of Singapore.

EMERITUS PROFESSOR

Prof Hew Choy Leong, Department of Biological Sciences at the Faculty of Science, has made distinguished contributions to the field of biological sciences, in areas such as fish antifreeze proteins and the development of transgenic fish technology.

THE MAN behind the implementation of public housing and formulation of a vision for the urban development of Singapore, Prof Liu Thai Ker, received the Outstanding Service Award at the University Awards 2009. Prof Liu is currently Adjunct Professor at the Lee Kuan Yew School of Public Policy. He is also the director of RSP Architects Planners and Engineers (Pte) Ltd.

As Chief Architect and later Chief Executive Officer of the Housing Development Board (1969-1989), Prof Liu guided the Board’s planning concepts which included the creation of two dozen self-sufficient new towns for some 200,000 people each. Under the “Home Ownership for All” policy helmed by the Government, Prof Liu oversaw the completion of more than half a million dwelling units.

He went on to serve as the Chief Executive Officer and Chief Planner at the Urban Redevelopment Authority (URA) (1989 to 1992). During his time at the URA, he oversaw and completed the revision of the Concept Plan which contributed to Singapore’s development into a vibrant global city.

On his association with NUS, Prof Liu said: “I am happy to be involved with NUS on academic matters, campus planning and architecture. It is a privilege and pleasure to see NUS growing from strength to strength.”

He hopes that through professional practice, he will continue to “push the boundaries of urban planning, environmental technologies and architecture in the interest of sustainability, liveability and beauty.”
Students welcome engaging with the Board

IN THE first of a series of monthly gatherings between students and members of the NUS Board of Trustees (BOT), NUS students have welcomed the opportunity to interact with Board Chairman Mr Wong Ngit Liong, Chairman and Chief Executive Officer of Venture Corporation Ltd, and BOT members Mr Chandra Mohan K Nair, Partner, Tan Rajah & Cheah, and LG (NS) Ng Yat Chung, Senior Managing Director (Corporate Development, Portfolio Management and Systems), Temasek Holdings (Pte) Ltd.  

Ms Sana Syeda Rahman, who attended the first meeting said: "These meetings are beneficial as it is a privilege to have the chance to learn from people who are successful leaders in their respective fields. We have much to gain learning from their insights and guidance, which will help us find the right direction in planning for our careers."

At the inaugural meeting held on 15 May 2009, students talked about the challenges that they face, their career aspirations and gave suggestions on how to further improve the educational experience in NUS. They also shared on matters such as accommodation and their experience living in Singapore. In sharing why they felt NUS to be a university of choice, the students cited the good reputation that NUS enjoys which gives them a competitive edge in their future endeavours.

Following the first session, the University aims to reach out to a larger pool of students and encourage greater interaction between students and members of the BOT.
China’s State Councillor Visits

WITH CHINA currently conducting a comprehensive review of its tertiary education system, the visit to NUS by the Chinese State Councillor underscores the Chinese view that culturally, China and Singapore have a lot in common and can learn from each other in education and research.

This observation was made by State Councillor of the People's Republic of China, Her Excellency Madam Liu Yandong, when she called on NUS on 24 April 2009. Her visit to Singapore was also her first to an Asian country since her appointment as State Councillor last year.

Madam Liu observed that the strong bilateral relationship between Singapore and China forms the foundation for close cooperation and exchange between NUS and many Chinese universities. She expressed her admiration for NUS’ status as an attractive and competitive world-class university, with its continuous pursuit of excellence and provision of a broad-based education that develops well-rounded graduates who can contribute to society.

In his welcome remarks, NUS President Prof Tan Chorh Chuan said the University was honoured to host HE Madam Liu and her delegation, adding that there is much collaboration between both countries especially in the areas of education and science. “I look forward to deepening and strengthening this long-standing partnership.”

During the discussion, Madam Liu showed interest in learning more about the University’s plans to prepare students to meet the challenges of the future. Prof Tan shared the three key changes made to the education offered by NUS: providing a broad-based education to prepare students for a lifetime of different careers, rather than a career for a lifetime; launching global education programmes to train students to be effective in diverse cultures, and not just in a local setting; and placing emphasis on the development of postgraduate and PhD education to equip students with the skills to continually acquire vital knowledge at various stages of their careers.

Madam Liu later toured the Translational Interface Core Facility of the NUS Cancer Science Institute of Singapore, Experimental Therapeutics Programme Leader Dr Goh Boon Chor.

In undertaking its comprehensive review of China’s tertiary education system, Madam Liu said that China has also sent delegates to visit educational institutions in various parts of the world, including those in the US, UK and Switzerland.
NUS eco-car ranks 5th at Shell Eco-marathon

KRUCE – short for Kent Ridge Urban Concept Eco-car – represented NUS at the world-renowned Shell Eco-marathon competition in EuroSpeedway Lausitz, Germany in May this year. KRUCE is the first eco-friendly urban concept car with zero carbon emission in Singapore that was designed and built by a team of Engineering students, in collaboration with the School of Design and Environment.

Powered by hydrogen fuel cell and with an excellent noise damping feature, KRUCE was first unveiled by NUS President Prof Tan Chorh Chuan and Dean of the Faculty of Engineering Prof Chan Eng Soon at NUS University Hall on 20 April 2009. At the Shell Eco-marathon competition on 9 May 2009, NUS competed against 66 teams from over 30 different countries in the Urban Concept category. The team was ranked 5th overall in the category, moving up more than 10 places from their overall 18th ranking achieved in France in 2008. They were also ranked 4th internationally in the Fuel Cell Vehicle category. The NUS team managed to achieve the high rankings despite having only the time to compete in the last official run. They missed the two earlier official runs due to the University’s overseas travel suspension owing to the global Influenza A (H1N1) situation.

Team leader Zhang Weisheng said: “We raced against time to assemble the car back to optimum working condition for the technical inspection, working late into the night until access to the paddock area is no longer allowed. Some of the team members had to struggle with their jetlag as they had no rest following arrival at the airport. We passed the technical inspection in the morning of 9 May, the last day of the race, and managed to take part in the last official run in the afternoon.”

The aerodynamic structure and power source of this year’s entry was built from scratch by 10 students from the Departments of Mechanical Engineering, and Electrical and Computer Engineering. The body of the car was designed and fabricated by the School of Design and Environment’s Design Incubation Centre team, working in close collaboration with the Engineering students.

With a customised hydrogen fuel cell power plant that drives an electric wheel hub motor, the team was able to ensure that the single-seater KRUCE achieves twice the energy efficiency of conventional internal combustion engines. The cell-like design of the car, which gives it a lower aerodynamic drag, allows for easy access to the mechanical components for trouble-shooting.

The team behind KRUCE began designing the concept car last August, working closely with Gashub Technologies.

The urban concept eco-car is a model project for the Faculty of Engineering’s new NUS Design-Centric Engineering Curriculum (DCC), an alternative learning pathway offered for the first time by a university in Asia. This will be available to freshmen at the Faculty of Engineering in this coming academic year.

GOING GREEN WITH KRUCE: (From left) NUS Eco-car project supervisor Assoc Prof Lu Wen Fen; Dean of the Faculty of Engineering Prof Chan Eng Soon and NUS President Prof Tan Chorh Chuan with the Eco-car team.
Prof Wang Gungwu conferred Honorary Doctorate by the University of Cambridge

IN RECOGNITION of his contributions as a historian of China and the Chinese, Chairman of the East Asian Institute Prof Wang Gungwu was conferred the Honorary Doctorate of Letters by the University of Cambridge on 12 June 2009. The Honorary Degree of Doctor of Letters is conferred upon outstanding individuals who have made scholarly contributions at the international level, in the arts, humanities or social sciences. Prof Wang is the first Chinese historian to be honoured by the University.

On his conferment, Prof Wang said: “I am deeply honoured that my work on Chinese history is considered to be significant enough to be recognised. More importantly, China’s position now attracts wider attention and universities acknowledge that understanding China’s history is invaluable to those who want to engage China from now on.”

As one of the world’s leading authorities on Chinese studies, Prof Wang’s work focuses primarily on Chinese history and the history of relations between Southeast Asia and China. Of particular relevance to the present are issues relating to the rise of China and its economic and political relationships with the region.

In the course of his career in academia, Prof Wang has received several awards, including being elected President of the Australian Academy of the Humanities, 1980-1983 and made Foreign Honorary Member of the American Academy of Arts and Science in 1994. Prof Wang was also awarded the International Academic Prize, Fukuoka Asian Cultural Prizes in 1994 and the Public Service Star Award from the Government of Singapore in 2008.

With the conferment of the Honorary Doctorate of Letters by Cambridge, Prof Wang joins eminent leaders from the myriad fields of religion, business, science, music, history, philanthropy, politics and economics to have received the award at a Congregation in a ceremony lauded as a colourful ‘scarlet day’ in Cambridge’s Senate-House.

EAI shares China insight with Thai Princess

THE EAST Asian Institute (EAI) which aims to promote academic and policy-oriented research on East Asian economies including contemporary China, provided an insightful appraisal of China and its economy to Thailand’s Princess Maha Chakri Sirindhorn during Her Royal Highness’ recent visit to the Institute on 23 April 2009. The Princess, travelling with her royal delegation, was in Singapore for a five-day visit on the invitation of President S R Nathan.

Accompanying Her Royal Highness on the visit to NUS was Minister for Community Development, Youth and Sports Dr Vivian Balakrishnan and his wife, Mrs Joy Balakrishnan.

During the discussion, EAI Chairman Prof Wang Gungwu mentioned that China is now faced with competition from a number of players on the global stage. EAI Director Prof Zheng Yongnian added that under China’s Hu-Wen administration, named after General Secretary Hu Jintao and Premier Wen Jiabao, more attention was given to state macro-control as well as issues pertaining to public health care, social security, education and market regulations. Prof Zheng also highlighted China’s anti-corruption efforts. This was followed by an insight into China’s economic situation amidst the current global downturn by EAI Research Director Prof John Wong.

Her Royal Highness noted that Thailand could likely tap on EAI’s expertise to better understand China in relation to issues such as nationalism, urban planning and the Chinese economy. This is Her Royal Highness’ third visit to EAI since 1999.
Development of sustainable plant energy efficiencies
NUS partners K S Natural Resources

THE YEAR-LONG partnership between K S Natural Resources (KSNR) and NUS Faculty of Engineering’s Minerals, Metals and Materials Technology Centre (M3TC) was announced on 21 April 2009. The Centre will serve as the technological solutions and research and development arm of KSNR.

KSNR, the fully-owned Singapore-based subsidiary of India’s K S Oils Ltd (KS) and one of India’s leading agri-based public listed companies, is also the first such company from India to be conferred International Headquarters (IHO) status by the Economic Development Board (EDB) on the same day.

“There are close to 3,700 companies from India who have a presence in Singapore today,” said EDB Assistant Managing Director Mr Quek Swee Kuan. “K S has become the first agri-based company from India to join our distinctive group of companies which have been conferred the International Headquarters status.”

The company’s establishment in Singapore through KSNR is part of its strategy to become a fully-integrated edible oil company with capabilities across the entire value chain.

Explaining his company’s expansion, K S Oils Managing Director Mr Sanjay Agarwal said “We want to replicate our success in India first in Asia, and then across the globe. With agri-assets and a strong backend supply chain both in India and abroad, we aim to become a leader in one of the key global edible oil markets – India.”

KSNR and M3TC have been working on R&D in mineral analysis and suitability of lands for plantations, energy saving systems using the Centre’s developed mathematical-modelling capabilities, as well as on continuous education and training of KSNR employees. M3TC Centre Director Prof Arun Sadashiv Mujumdar, said “This past year we have successfully completed the first stage of work with KSNR, which involved extensive mineral and nutrient analyses of plantation sites in order to devise an optimal plan to achieve accelerated crop growth.”

M3TC Director of Operations Dr Joshua Kumar added that further mineral analyses on potential future plantation sites for KSNR have been carried out, while the third phase of collaboration will be targeted to provide state-of-the-art technological solutions towards optimising KS Group’s overall production facilities.

Mr Sanjay also added that the KS Group is a company that is truly open to new ideas and innovative technological solutions in the effort to develop an overall sustainable, low-cost production model.

KSNR aims to achieve annual revenue of USD 1 billion by 2014 through trading and shipping activities in Singapore and oil investment in Malaysia and Indonesia.
Discovering the coolest spot on the Equator

THE CENTRE for Quantum Technologies (CQT) – Singapore’s first Research Centre of Excellence – might well be considered the coolest place on the Equator. Investigators at the CQT laboratories have successfully accomplished the Bose-Einstein condensation, in which a collection of atoms reach a state of matter that is as cold as the fundamental laws of physics will allow.

The Bose-Einstein condensate is named after Satyendra Nath Bose and Albert Einstein who predicted such a state in 1924. However, it was not until 1995 that a group of researchers managed to produce the Bose-Einstein condensate in the laboratory. In recognition of their work, they were awarded the Nobel Prize in Physics in 2001. In Singapore, CQT’s Principal Investigator Dr Murray Barrett and PhD student Kyle Arnold have successfully produced the state near the Equator.

Dr Murray Barrett likened a gas of atoms or molecules to a collection of billiard balls bouncing off one another. He noted that temperature provides a measure of how energetic or fast the molecules move. “However, in the peculiar world of quantum physics, it is impossible to obtain precise knowledge of both the position and speed of an atom at the same time,” he said.

He explained that the “billiard balls” description of atoms break down when they reach a critical temperature less than a millionth of a degree above absolute zero, which is 0 Kelvin or -273.15 degrees Celsius. “The atoms become so cold that the uncertainty in their position is comparable to the separation between atoms. This means that several atoms can occupy the same region of space at the same time and this is something that billiard balls simply cannot do! At this critical temperature, all the atoms condense into the lowest energy state available. They lose their individuality completely and behave as a single quantum entity – the Bose-Einstein condensate.

The condensates are produced only in the world’s most advanced laboratories. The achievement of the CQT is testament to Singapore being in the premier league of experimental atomic physics and provides local researchers with the most sophisticated tools in which to investigate the quantum properties of matter. While to-date there is yet applications for the condensates, there are potential applications in fields such as nanotechnology and holography on the horizon.

Building research excellence

SINGAPORE is able to attract the brightest and most committed research talent to carry out breakthrough science.

Speaking at the NUS Centre for Quantum Technologies (CQT) where two of the Centre’s researchers achieved the “Bose-Einstein condensate” on 22 April 2009, Chairman of the National Research Foundation Dr Tony Tan said: “I commend the CQT for achieving such a difficult undertaking in a relatively short time. The remarkable achievement of Dr Murray Barrett and Kyle Arnold makes Singapore one of a small number of countries in the world to achieve this complex atomic physics experiment.”

To-date, only a select number of countries in the region including Japan and Australia are known to have been able to produce the condensate.

Dr Tan highlighted that despite the current economic downturn, Singapore will still continue to invest in research and development. It is only in doing so that the country will not stagnate and be overtaken by other developed nations.

The CQT is the first Research Centre of Excellence (RCE) established in Singapore to help local universities become research-intensive through world-class, investigator-led research that has a global impact. Besides helping first-rate academic investigators perform high quality, high-impact research, RCEs aim to enhance graduate education and train quality research manpower. It also aims to create new knowledge in areas of strategic relevance to Singapore.

BOSE-EINSTEIN CONDENSATE RESEARCHERS: Dr Murray Barrett (left) with Kyle Arnold.
SCIENTISTS have found the reason why some smokers are more likely to develop lung cancer than others from a study that is the first to link a tobacco-specific chemical in urine to lung-cancer risk in humans.

A research team led by Assoc Prof Koh Woon Puay of the NUS Yong Loo Lin School of Medicine’s Department of Epidemiology and Public Health, and Assoc Prof Yuan Jian-Min of the University of Minnesota, found that the level of a metabolite – NNAL – from a tobacco-specific chemical measured in the urine of smokers correlated with their subsequent risk of lung cancer.

The results of the study were presented at the American Association of Cancer Research’s 100th annual meeting in Denver, USA, in April this year. The findings were also published in the prestigious biomedical journal Cancer Research.

Urine test study a first in predicting lung-cancer risk

Measurements done on urine samples showed that smokers who subsequently developed lung cancer had elevated levels of NNAL in their urine at baseline relative to smokers who remained free of cancer. In fact, smokers with the highest tertile of urinary NNAL measurement had a more than 2 times increased risk of developing lung cancer compared to those in the lowest tertile. When both levels of cotinine (a metabolite of nicotine) and NNAL were measured, it was found that smokers who had high levels of both NNAL and cotinine had an 8 ½ times increased risk of developing lung cancer.

The Singapore Chinese Health Study, conducted by the Department of Epidemiology and Public Health in the National University of Singapore, is a prospective, long-term study of dietary, genetic and environmental determinants of cancer and other chronic diseases in Singapore.
**Funding boost further enhances NUS innovation ecosystem**

NUS HAS received innovation grant funding of $9 million from the National Research Foundation (NRF) to nurture future generations of entrepreneurs. This is part of the $22 million from the NRF’s $50 million University Innovation Fund (UIF) aimed at strengthening the innovation and enterprise ecosystems at the three local universities – through encouraging innovation and facilitating the creation of high-tech startup companies in bringing R&D results from lab to market.

The $50 million UIF is part of the $360 million National Framework for Innovation and Enterprise (NFIE) which was announced by the Prime Minister on 28 March 2008 to make innovation and entrepreneurship pervasive in Singapore. The remaining $28 million of the $50 million UIF will be set aside to support future proposals from the universities.

“The new funding from NRF will provide a significant boost to the entrepreneurial and innovation activities at NUS,” said NUS President Prof Tan Chorh Chuan. “The six NUS Overseas Colleges provide a unique entrepreneurial education that students have described as ‘life-transforming’, while NUS’ downstream commercialisation initiatives are growing in pace and impact. The launch of the University Innovation Fund will provide additional opportunities for NUS to further advance the scope and depth of our enterprise and innovation activities, as well as strengthen the impact of our contributions to Singapore’s knowledge-based economy.”

NUS Enterprise CEO Dr Lily Chan added: “NUS Enterprise has spent the last three years putting in place a comprehensive enterprise ecosystem. This grant from NRF will further enhance and support our innovation and enterprise activities, including entrepreneurship education programmes, platforms to encourage start-up formation, guidance to aspiring entrepreneurs and activities that promote entrepreneurship – elements of a vibrant and self-sustaining innovation ecosystem.”

“The launch of the University Innovation Fund will provide additional opportunities for NUS to further advance the scope and depth of our enterprise and innovation activities, as well as strengthen the impact of our contributions to Singapore’s knowledge-based economy.”

– Prof Tan Chorh Chuan

The strong innovation ecosystem created by NUS Enterprise has benefitted young companies which have been making significant milestones over the years. Together with the innovative Local Enterprise Achiever Development (iLEAD) programme, the spirit of enterprise is further infused into the NUS education with the setting up of the NUS Overseas Colleges (NOC) programme in 2002.

NUS will use the $9 million innovation grant to continue to nurture future generations of entrepreneurs in Singapore by enhancing and expanding the NOC and iLEAD programmes, particularly in high-impact entrepreneurial hubs like Beijing and India. The grant will also be used for two new major initiatives for postgraduate students and faculty members, namely, the Extra Chapter Challenge and the Enterprise and Innovation Award.

Both the Nanyang Technological University and the Singapore Management University will also receive $6.5 million each from the initial UIF budget.
Accountant’s gift to benefit NUS Business School

THE ESTATE of the late accountant Mr Foo Hee Lim has pledged $1.77 million to the NUS Business School. The gift will provide assistance to academically-strong accountancy students in financial need. A well-reputed professional in his field, Mr Foo strongly believed in the importance of education and has bequeathed his support of deserving students who would in turn contribute to society.

NUS President Prof Tan Chorh Chuan said: “This gift will be instrumental in providing outstanding students with a transformational university experience at NUS. We are grateful to the family of the late Mr Foo Hee Lim for this gift as it will provide opportunities for deserving students to achieve beyond themselves – to be self-surpassing.”

The gift will be used to set up the Foo Hee Lim Bursary and Foo Hee Lim Prize to benefit NUS students in the Bachelor of Business Administration (Accountancy) programme. Beginning from Academic Year 2009/10, bursaries worth $6,800 each year will be awarded to deserving students to cover annual tuition fees and study-related expenses for three years, starting from their first year of study. The Foo Hee Lim Prize will be given to the best graduating Bachelor of Business Administration (Accountancy) Honours Year student who will be pursuing the profession upon graduation. The annual prize will consist of a cash award of $3,500 and a medal.

Dean and Stephen Riady Distinguished Professor of NUS Business School Prof Bernard Yeung said: “We deeply appreciate this generous gift from the Estate of the late Mr Foo, especially in such times of economic downturn. Our School’s goal is to provide our students with strong basic training and opportunities for them to become confident and enterprising business professionals who are socially responsible as well. This gift will further help us to attract and develop young promising individuals to become professionals in the field of accountancy.”

The late Mr Foo’s estate has also pledged an equal amount of $1.77 million to the Nanyang Technological University. The combined gift of $3.5 million will be matched dollar-for-dollar by the Singapore government, bringing the total funding to $7 million.

GIVING TO NUS

Lions Clubs’ 50th anniversary gift to benefit 22 NUS students

THE SINGAPORE LIONS CLUB mark 50 years of community service with a gift of $75,000 to help bright tertiary students who are in need of financial assistance. At NUS, 22 students from the Faculty of Arts and Social Sciences (FASS) stand to benefit from this gift.

The gift will go towards establishing the Singapore Lions Clubs’ Bursary at the Faculty. Each bursary is worth $2,000 and will be given out over a three-year period. They will go to academically-talented students who are Singaporeans or Singapore Permanent Residents in need of financial aid. For the next academic year 2009/2010, 10 NUS students will receive the bursaries.

The gift of $75,000 from the Lions Clubs will also benefit students at the Singapore Management University (SMU) with the establishment of the Singapore Lions Clubs’ Study Award.

The first Lions Club was founded in 1958 in Singapore with the aim of being the foremost voluntary welfare service organisation in the country. Since its formation, Lions Club has been helping the disadvantaged and underprivileged elderly and recipients of the bursaries are thus encouraged to visit and participate in the services and activities offered by the Lions Home for the Elders and the Lions Befrienders Service.

Chairman of Singapore Lions Community Service Foundation, Past District Governor Isabel Cheong said: “The Bursary and Study Award will not only enable us to support undergraduate academic needs but will also allow us to connect more closely with young people in both universities and nurture their participation in the Singapore Lions Clubs’ services for disadvantaged communities.”

NUS Dean of FASS Prof Tan Tai Yong said that the Bursary would provide much needed financial support especially given the current economic slowdown. He added: “The Faculty of Arts and Social Sciences (FASS), in particular our Social Work Department, has had a long tradition of engagement with the social services sector, and as a result, has produced generations of leaders in the field. The Faculty actively promotes community involvement by its students, and the contribution by the Singapore Lions Clubs underscores the close link which exists between the Faculty and the community service sector.”

Chairman of Singapore Lions Community Service Foundation, Past District Governor Isabel Cheong, Chairman, Singapore Lions Community Service Foundation, Guest of Honour, Hjh. Ellis Suryatati, International Director, Lions Clubs International, and Prof Tan Tai Yong, Dean of NUS Faculty of Arts and Social Sciences
Developing a passion for social entrepreneurship

A TEAM of NUS Business School students have put their passion for social entrepreneurship to work in a rewarding way - they have developed a savings and budgeting tool-kit to help families monitor their expenditure on food, utilities and debt payment.

The pilot project undertaken by six Year 4 undergraduates, benefits 20 low-income beneficiaries of The Straits Times Pocket Money Fund. It is a joint effort between NUS Business School and the Tampines Family Service Centre (TFSC).

Twice a month, the families attend workshops conducted by the students and TFSC staff to learn how to monitor their household expenses with the budgeting tool-kit that the students devised. During these sessions, the families also received advice on issues such as managing their loan repayments and ways to reduce their utility bills.

The social entrepreneurship project comes under the Consulting Practicum (CP) module guided by NUS Centre for Social Entrepreneurship and Philanthropy Director, Assoc Prof Albert Teo. The CP module allows students to earn modular credits and apply classroom knowledge to the real world by contributing to community development.

Translating what they learned in class has proved challenging for the team as they applied their knowledge of asset and private wealth management to benefit those from low-income backgrounds. The team also had to juggle between attending classes and holding workshops after school hours.

Team leader Serene Koh Sze Chiah said: “The experience has taught us to communicate with families from different backgrounds. Although our team was there to ‘educate’ these families on financial issues, we have also learned a lot from the families.” The team has also given TFSC ownership privileges of the budgeting tool-kit which they developed. They hope to extend the programme in the near future to benefit more families.

The Singapore-MIT Alliance for Research and Technology Centre (SMART Centre), a newly-established research enterprise between the Massachusetts Institute of Technology (MIT) and the National Research Foundation of Singapore, has launched three programmes targeted at talented doctoral and undergraduate students. The programmes also hope to attract postdoctoral researchers to embark on exciting research projects at the SMART Centre which will be located at the Campus for Research Excellence in the upcoming University Town in NUS.

The three programmes launched are the Graduate Fellowship Programme, the Undergraduate Research Opportunities Programme (UROP) and the Postdoctoral Research Fellows Programme.

MIT Prof Rohan Abeyaratne, Director of the SMART Centre, said “The SMART Centre aims to undertake cutting-edge research projects that address critical problems of societal importance.

At the same time, one of our major goals is to attract, nurture and anchor young talent in Singapore. The three programmes that we have just launched aim to do just this.”

More information on the programmes can be found at http://web.mit.edu/smart/index.html

The NUS Institute of Systems Science (ISS) was selected as the pioneer Infocomm Continuing Education and Training Centre by the Singapore Workforce Development Agency and Infocomm Development Authority of Singapore on 9 April 2009. ISS will deliver infocomm technology training under the National Infocomm Competency Framework to upgrade and enhance the capabilities of infocomm professionals. Incepted in 1981, the ISS aims to provide broad-based advanced professional continuous education in Information Technology.

For more information on the courses offered by ISS, please visit: http://www.iss.nus.edu.sg

At a Glance

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NUS AMBASSADORS: (From left) Goh Khee Hong, Soh Weiling Donna, Koh Sze Chiah Serene, Leong Yan Wei Ian, Anderson Quah Shu Chip and Lai Wai Kit.
Two outstanding inventors from Engineering recognised at Tan Kah Kee Young Inventors’ Awards

INVENTORS at NUS have proved their mettle yet again with impressive wins at the Tan Kah Kee Young Inventors’ Awards 2009. Dr Lee Poh Seng from the Department of Mechanical Engineering clinched the Silver Award in the Defence Science Section while PhD student Tan Swee Jin from the Graduate School for Integrative Sciences and Engineering (NGS), received the Merit Award in the Open Section.

The event was jointly organised by the Tan Kah Kee Foundation, the Agency for Science, Technology and Research and the Defence Science and Technology Agency with the support of the Science Centre Singapore (SCS). Senior Minister of State of the Ministries of National Development and Education Ms Grace Fu was guest-of-honour at the award ceremony on 23 May 2009. All winning inventions were displayed at the SCS.

Dr Lee won for his solution on thermal management. He invented a “heat sink” micro system that effectively takes the heat off machines and systems by 80 per cent. His creation spells applications for defence and everyday life, including the lowering of temperatures in tanks as well as decreasing the heat in CPUs. Dr Lee worked for a year before coming up with his invention with the help of a University grant.

Mr Tan worked with a team from the Division of Bioengineering, Faculty of Engineering and NGS, and together with the Institute of Microelectronics devised a micro device to physically extract cancer cells from blood with high isolation efficiency and purity. The isolated cancer cells hold information on the development of the disease and is able to reveal the progress of treatment and medication which the patient has undergone. Mr Tan was supervised by Assoc Prof Lim Chwee Teck of the Department of Mechanical Engineering.

Launched in 1986, the Tan Kah Kee Young Inventors’ Award was introduced by Nobel Laureate Prof C N Yang. It aims to stimulate creativity among youths and promote scientific and technological research in Singapore. There is also a Shanghai chapter of the Award.

Making their mark of excellence

We celebrate the following achievements of our students in an array of endeavours:

- **Reuben Ng**, an NUS Psychology and University Scholars Programme graduate from the Class of 2006, emerged runner-up for the UK Economic and Social Research Council (ESRC) Neville Butler Memorial Prize. Reuben was also awarded the International Fulbright Science and Technology Award in 2008 and is planning to pursue a PhD in Yale later this year.

- **Lim Qilun Royston** and **Liang Yanjie**, both third-year Industrial Design students, clinched the Silver award at the 5th Furniture Lifestyle Innovations Perspectives, or FLP, on 6 March 2009. Their winning design, called the “Pogee”, is a child-size rocking animal companion. Another team from the School of Design consisting of **Abdul Rashid Bin Adnan** and **Samson Tan** won the Merit award.

- NUS team consisting of students from the Department of Real Estate, School of Design and Environment (Jalleh Shaun Ming Yi, Tang Yong Ching and Yvonne Tan Yi Wen) and Business School (Chong Kang Wei, Visayon Viravong and Wu Junhan) emerged the winner at the 4th USC Marshall International Real Estate Case Competition in the US, which was held over three days from 13-17 April 2009. NUS also won at last year’s competition.

- **Chan Hian Yi**, (Engineering), **Chen Pengfei** (Engineering), **Crispina Tay Yan Bing** (Life Sciences) and **Tan Choon Han** (Pharmacy) won second spot at Peak Time 2009 – the biggest international business competition in Europe. Some 500 teams pitted against one another at the global competition organised by the Stockholm School of Economics in Riga, Latvia.

- **NUS Soccer Team** scored a first making its mark as the first university to win the S R Nathan Challenge Trophy since the competition began in 2002, beating defending champion Nanyang Polytechnic 1-0 in the finals. Team member Victor Wong delivered the only goal of the game, sealing the win for the NUS team in the match.
SNAKES and scorpions are better known – or maligned – for their deadly venoms, as in many a Hollywood movie. However, to Prof P Gopalakrishnakone of the Yong Loo Lin School of Medicine’s Venom and Toxin Research Programme and Department of Anatomy, the components of venoms can be used to develop drugs and help alleviate certain symptoms such as soothing inflammation in rheumatoid arthritis or pain relief in terminal illness.

“My love of nature especially for animals goes as far as I could remember. This made me think of a way to combine my hobby with my profession,” recalled the well-reputed Prof Gopalakrishnakone on how his passion for venom and toxin research came about. “I chose to work with dangerous animals and their venoms as natural venoms have compounds with very specific properties which could be used for the benefit of mankind.”

He added that while plants had been investigated and used as drugs for a number of years, it was only in the last 50 years that scientists have started studying animal venoms very seriously. Since then, a few blockbuster drugs derived from animal venoms have been produced and approved by the Food and Drug Administration (FDA).

Prof Gopalakrishnakone’s passion in toxinology – the specialised field of studying animal, plant and microbial toxins – has led him to serve as President of the prestigious International Society on Toxinology (IST) for a three-year term. In his capacity as IST President, he will take the lead in formulating a work-plan to look into key issues in the field. This includes global issues on clinical toxinology, the nomenclature or naming system of toxins, as well as the control and usage of toxins. He is also actively involved in IST as Council Member and serving on the editorial board of Toxicon, the official journal of IST published by Elsevier, the world’s largest publisher of medical and scientific literature. Earlier, in 1985, he had founded the Asia-Pacific arm of IST and organised the first Asia-Pacific Congress on Toxin as well as the World Congress of IST in Singapore. There are currently IST sections in Europe and America. Prof Gopalakrishnakone is organising a section for Africa.

Following his post-graduate studies in 1979, Prof Gopalakrishnakone was drawn to NUS as its Department of Anatomy had an established reputation in the region for publishing studies using electron microscopy in international journals. For his contribution to research, he was conferred the Doctor of Science by NUS. Besides being a medical doctor, Prof Gopalakrishnakone also holds a PhD from London and has garnered a number of teaching and research awards over the years: Outstanding University Researcher Award in 1998 and National Science and Technology Board Ministerial Citation winner in 2000. He also received the Faculty Outstanding Researcher Award in 2003 as well as the Teaching Excellence Award in academic year 2003/2004. Awarded his first patent in 2003 for “novel therapeutic and prophylactic agents”, he has gone on to apply for a number of patents and licensed “an analgesic peptide” to a company for further development for clinical use.

As for research, Prof Gopalakrishnakone plans to continue his work on venoms and toxins and discover more novel compounds – all this while inspiring young talents to whom he could pass on the baton. On teaching, he said, “I hope to crystallise my experience in teaching medical students for more than three decades into a guide format, and raise some critical issues so that young teachers can work on them and solve them if possible.”
THE PRIZE giving ceremony for the inaugural photo contest – “People and Places: Snapshots of Life on Campus” – was held on 17 April 2009 at NUS Central Library. Organised by NUS Office of Corporate Relations (OCR), the event was graced by Guest-of-Honour, Vice President (University & Global Relations) Prof Lily Kong.

Witono Halim, a third-year engineering student, was all smiles as he bagged two of the three prizes – a Sony PSP-3000 and an Apple iPod Nano – at the prize-giving ceremony. His photograph of the University Cultural Centre (UCC), titled “The Moment Here”, won the Best Photograph for Campus Sceneries/Places and Best Overall Photograph, which was the people’s choice vote. Fourth-year PhD student Le Huynh Nguyen Khang took the Best Photograph prize for the Campus Activities/Events category – a Creative Vado HD Camcorder – for his photograph depicting sports life on campus, titled “On the Pitch”. Ten merit awards were also presented to the finalists of the competition.

On his choice of making the UCC the subject of his winning photograph, Witono said: “UCC is one of the most artistic and exotic places in NUS. As a visual art and music lover, I always enjoy my visits to the UCC for piano and drama performances. Therefore, the sculpture ‘I WAS HERE’ outside of UCC easily caught my attention and inspired me to take a shot of it for the photo contest.”

He added that photography has proved to be his favourite medium for expression. “I wanted to capture the moments and souls of life. I love to tell stories of people with my photographs.”

The photo contest was aimed at creating awareness of campus life and to promote a better knowledge of the places and people of NUS. Close to 150 photographs were received for the contest. The judging panel comprised Straits Times’ Deputy Picture Editor Mr Malcolm Mcleod, Lianhe Zaobao’s Chief Photographer Mr Lee Tiah Kee, OCR Director Mrs Ovidia Lim-Rajaram, as well as NUS Photographic Society President Mr Muhammed Firdauz bin Abdul Rahman.
Honouring outstanding individuals