

# NTU



## NEWSLETTER

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## Int'l Experiment to Improve Monsoon Forecasting

NTU Scientists Win Prestigious Awards

Alumni to Enhance Networking

NTU Hospital Landmark Kidney Transplant  
Surgery

**Special Report**  
Food Safety Center



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## NTU AT A GLANCE

New Book Explores Transitions in Taiwan Since Martial Law



## From the President's Office

NTU is adopting strategies aimed at guiding students and professors in taking advantage of globalization and developing their international perspectives.

The university has set the goal of having one-third of undergraduates participate in study abroad programs for one semester or in overseas intensive winter or summer courses within the next three to five years. At the same time, we are actively encouraging international students to study at NTU. This will provide local NTU students unable to go abroad with opportunities to develop a basic understanding of the world's different cultures by interacting with international students here on campus.

NTU currently offers around one thousand classes that are taught in English, and we intend to steadily boost the number of international professors on campus as well. While it is not our intention to institute all English instruction, we are taking advantage of the growing international interest in studying Mandarin as well as NTU's rising academic status (the university placed 80th in the 2012 QS World University Rankings) in order to attract international students. Therefore, we have established the Center for International Education. One of the center's services is providing a range of Mandarin language courses for international students.

Furthermore, since most of the outstanding academic papers published by NTU researchers recently resulted from cooperation with international researchers, the university is encouraging our professors to pursue greater collaboration with researchers overseas and even apply for funding abroad.

These efforts and others are all aimed at increasing international exchanges and enhancing the internationalization of the NTU campus.

李嗣涔

President  
Dr. Si-chen Lee

## President Lee Calls on Freshmen to Pursue “Five Musts”

A welcoming ceremony and parents day activities were held for this year’s freshmen students on September 8. During the ceremony, NTU President Si-chen Lee called on the students to take full advantage of the university’s abundant resources and develop their open-mindedness and sensibilities during their golden years here at NTU. The same day a student club fair allowed NTU’s students to showcase their personal interests and spirit of positivity and innovation for their new schoolmates.

President Lee opened his speech by pointing out to the new students that NTU boasts the finest resources of any university in Taiwan and that with the support of the Ministry of Education it has joined the ranks of the world’s leading one hundred universities. President Lee noted that NTU’s aggressive pursuit of international cooperation has led to the establishment of three world-class research centers recently. Declaring that the university will continue to develop its campus facilities, he called on the freshmen to make the most of their golden years at NTU by developing their open-mindedness and sensibilities rather than simply training for a career. President Lee said that while the freshmen are the best students in the nation, now that they are in university they need to avoid placing excessive importance on class rankings because innovation is more important

than grades. He cited the examples of Google and Facebook, companies started by university students that went on to change the world.

President Lee emphasized the importance of independent thinking, saying that NTU’s courses offer a diversity of knowledge and academic thought across all fields and that this will become the foundation of the students’ experience and knowledge. In the course of his speech, President Lee enumerated “five musts” to highlight his aspirations for NTU’s new students: open-mindedness, the courage to try, independent judgment, a broad view of life, honesty, and integrity.

NTU is proud of its many student clubs that allow students to explore their interests in a wide range of pursuits and hobbies. Each club was set up for a different purpose; some clubs offer classes to help students develop their interests while others provide community services that allow students to grow while feeding back to society.

The student club fair lined Royal Palm Boulevard with booths and displays showcasing all of the university clubs. The members of the many martial arts clubs were decked out in their uniforms and sparred with their partners to display their fighting skills. The kendo club even brought out a training dummy to give the new students the chance to test their skills. Arts and culture clubs also showed their colors. The members of the Taiwanese puppet opera club dressed up as puppet characters and demonstrated how to manipulate the puppets.



## NTU AND FDA ESTABLISH NATIONAL FOOD SAFETY CENTER



Attendees of the inauguration ceremony of the National Center for Food Safety Education and Research pose for a group photo.

The College of Bioresources and Agriculture and the Department of Health's Food and Drug Administration inaugurated the National Center for Food Safety Education and Research on August 31. NTU President Si-chen Lee and Minister of the Department of Health Wen-ta Chiu presided over the center's opening ceremony. The center aims to instill food safety awareness in people working in the food industry as well as raise public understanding of food safety. It will

conduct food safety risk analysis, enhance food safety and promote knowledge of food safety.

The center will serve as a long-term platform for cooperation across disciplines between government, industry and academia. Its core objectives are: 1) establishing mechanisms for the communication of food safety risks to the media and public, and advising the government during major food safety emergencies; 2) setting up a risk analysis database, and

providing consultation to industry; 3) training instructors to promote food safety, and designing promotional materials; 4) offering food safety education courses for the training of professional personnel; 5) conducting research on food safety risk analysis and testing technology; 6) carrying out administrative tasks involving communication and collaboration both inside and outside the center; and 7) pursuing other matters of mutual interest between the Food and Drug Administration and College of Bioresources and Agriculture.

Prof. Lee-yan Sheen of the Center for Food and Biomolecules serves as the new center's first director. The center is divided into six divisions, each headed by faculty of the College of Bioresources and Agriculture.

## NORTH AMERICAN NTU ALUMNI ASSOCIATIONS FORM UMBRELLA ASSOCIATION

The NTU Alumni Association of North America (NTUAA-NA) was officially formed on August 11. The umbrella association's founding ceremony was attended by NTU President Si-chen Lee and Vice President Ming-je Tang as well as the chairpersons and representatives of each alumni association in North America and Taiwan. The ceremony drew more than one hundred NTU graduates from New York, Northern



California, San Diego, Texas and Taiwan.

President Lee pointed out that NTU entered the ranks of the world's top one hundred universities in 2009 and set its sights on joining the top 50 in 2011, and that these advances were achieved primarily through cross-institutional cooperation. Noting that endowments would help NTU realize these types of cooperation projects, President Lee expressed his hope that the establishment of the NTUAA-NA would lead to ever more alumni

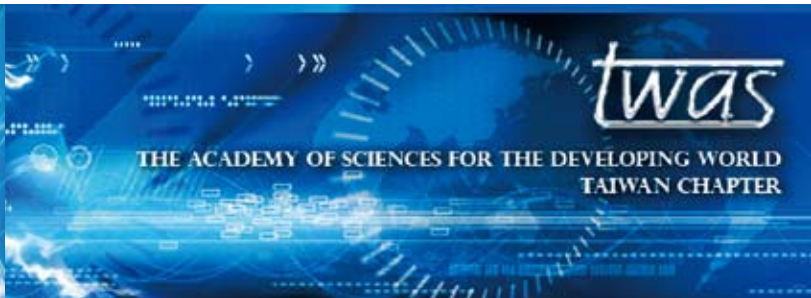
making contributions to their alma mater.

Vice President Tang noted that NTU has over 200,000 alumni and that conservative estimates place the number of alumni in the United States and Canada at around 100,000. He also expressed his hope that NTU alumni would make annual donations of US\$100 each to help the university achieve its goal of becoming one of the top 50 universities in the world.

NTUAA-NA Chairperson Alan Hsu stressed that the main benefits of the joint association were bringing together alumni living in different places and providing both a single channel for contributing to NTU and an effective platform for networking among alumni.



## QUANTUM PHYSICIST NAMED TWAS PHYSICS ACADEMICIAN



Prof. Shih-i Chu of the Department of Physics was named an academician in the field of physics by the Academy of Sciences for the Developing World (TAS) in September. This is a great honor for Prof. Chu as well as for all students and faculty of the College of Science. It also adds new luster to the college's recent outstanding research achievements.

Prof. Chu is an authority in quantum science and computational science who has presented numerous cutting-edge theories and precise computation methods. Prof. Chu has made innovative contributions to atomic, molecular and strong-field laser physics, chemical physics, astrophysics, atomic and molecular resonance, time-dependent density functional theory, quantum chaos and fractals, and atomic and molecular collisions.

One of Prof. Chu's greatest contributions has been to lay the foundation for and develop the field of strong-field atomic and molecular physics. He presented his

non-hermitian Floquet theory in 1977. This is regarded as the earliest classic work in the study of atomic and strong-field laser non-perturbation interaction effects, since it laid the foundation for a new theory. Prof. Chu went on to introduce a series of generalized Floquet theories as well as precise computations for the study of dynamics. These theories and computations have been applied widely to all types of multi-photon chemical and physical reaction and the research of non-linear optical phenomena.

TAS was founded in 1983 with the mission of helping developing nations pursue scientific research and develop applications. At present, the academy has 1,000 academicians from 95 countries. Each year, TAS selects academicians in the eight areas of agricultural science, engineering, chemistry, mathematics, physics, biology, medicine and earth science. In related news, it is noteworthy that five of the six Taiwanese scientists named TAS academicians this year are NTU alumni.

## NTU Scholars Receive National Chair Professorships and Academic Awards

The Ministry of Education has announced the recipients of the 16th National Chair Professorship and the 56th Academic Award. NTU is honored that three of the eight National Chair Professors are NTU professors and four of the 11 Academic Award recipients are NTU professors. In all, 34 scholars in Taiwan were recommended for the National Chair Professorship and 78 were recommended for the Academic Award.

NTU's 16th National Chair Professors are Prof. Chun-chieh Huang of the



Department of History (Liberal Arts); Prof. George Wei-shu Hou of the Department of Physics (Mathematics and Natural Science); and Prof. Liang-gee Chen of the Department of Electrical Engineering (Engineering

and Applied Science).

NTU's 56th Academic Award recipients are Prof. Kuo-liang Yeh of the Department of Chinese Literature (Liberal Arts); Prof. Ming-hui Huang of the College of Management (Social Science); Prof. Jung-kai Alfred Chen of the Department of Mathematics (Mathematics and Natural Science); and Prof. Lee-ming Chuang of the Graduate Institute of Epidemiology and Preventive Medicine (Biology and Medical and Agricultural Science).

## ACCLAIMED CHINESE-AMERICAN PHYSICIST PRESENTS TWO LECTURES

Acclaimed Chinese-American theoretical physicist Dr. Shoucheng Zhang presented two lectures at NTU on September 3. NTU President Si-chen Lee also named Dr. Zhang a visiting chair lecturer while he was on campus.



▲ Shoucheng Zhang (left) of Stanford, Duncan Haldane (center) of Princeton and Charles Kane (right) of the University of Pennsylvania received the 2012 Dirac Medal of the International Centre for Theoretical Physics for their work on topological insulators.

In 2006, Dr. Zhang, who is the J.G. Jackson and C.J. Wood Professor of Physics at Stanford University, became the first scientist to provide experimental evidence supporting the theory of the quantum spin Hall effect and topological insulators. It is for his work on topological insulators that Dr. Zhang was named one of the recipients of the prestigious 2012 Dirac Medal of the ICTP, which is presented by the Abdus Salam International Centre for Theoretical Physics (ICTP). Topological insulators are expected to lead to revolutionary advances in both theoretical and practical applications in information technology.

In his first lecture, "Seeing the Universe Through a Grain of Sand," Dr. Zhang explained in simple terms how the knowledge scientists have gained through the investigation of sand has helped them develop theories regarding the formation of the universe. In his second lecture, "Topological Insulators and Superconductors," he used simple language to explain the complexities behind his award-winning work. Following the lectures, Dr. Zhang took time to engage in discussions with attendees on the possible impacts of topological insulators on science and industry.



as a member of the US Physics Team at the 42nd International Physics Olympiad in 2011. Having learned that Taiwanese students have historically proven to be strong competitors at the Olympiad, Brian decided to join his father to speak with Taiwanese university students and outstanding high school students about his take on science and aspirations for the younger generation.

In addition, Dr. Zhang's eldest son, Brian Zhang, accompanied his father on the day of his NTU lectures. The junior Zhang earned a gold medal while competing



Dr. Zhang earned a number of prestigious awards as a result of his 2006 work on topological insulators. In 2010, the European Physical Society presented him with the Europhysics Prize, the foremost prize for condensed matter physics in Europe. And, this year, the American Physical Society awarded him the Oliver E. Buckley Condensed Matter Prize. Along with the Dirac Medal, these awards are recognized as three of the most prestigious prizes in the international physics community.

Born in Shanghai, China, in 1963, Dr. Zhang went on to earn his bachelor's degree from Free University of Berlin in 1983 and his PhD from the State University of New York at Stony Brook, where he worked under Nobel Physics laureate Chen-Ning Franklin Yang, in 1987. Zhang became a professor at Stanford University in 1993. He is a fellow of both the American Physical Society and the American Academy of Arts and Sciences.

## Two Distinguished Professors Receive Cho-chang Tsung Chair Award



Prof. Bin-juine Huang

Prof. Kuang-chong Wu



The Cho-chang Tsung Foundation of Education has bestowed its Cho-chang Tsung Chair Award for 2012 on Prof. Bin-juine Huang, a distinguished professor of the Department of Mechanical Engineering, and Prof. Kuang-chong Wu, a distinguished professor of the Institute of Applied Mechanics.

The foundation established this award to raise the standards in all of the fields of engineering at NTU's College of Engineering by recognizing professors who have achieved high academic status or exceptional success in the promotion of industry-academia cooperation. The foundation presents each award recipient with NT\$400,000.

After completing his graduate studies at Case Western Reserve University in 1976, Prof. Huang returned to NTU where he has taught in the Department of Mechanical Engineering for 36 years. He has dedicated his life to energy technology, refrigeration technology and system control technology, and has made contributions in both theory and practical applications in these areas. In 1999, Prof. Huang established NTU's New Energy Center to pursue research into renewable energy and new energy technology. He has cooperated with industry in developing more than 30 products, and has promoted the rapid development of the heat pump and high-power LED lighting industries in Taiwan and China. Prof. Huang has published nearly 200 academic papers and holds more than 60 patents in Taiwan and abroad.

Since returning to Taiwan after earning his PhD from Cornell University in 1985, Prof. Wu has endeavored to unravel the mysteries of anisotropic elasticity. In 2000, he extended his research focus to problems of two-dimensional dynamics. Prof. Wu's research accomplishments have earned him the National Science Council's Outstanding Research Award three times.

Prof. Wu's excellence is not limited to his lab work. He has been named NTU Best Teacher twice and NTU Outstanding Teacher once. Prof. Wu has also committed himself to serving the field of engineering. He has served as director of the Institute of Applied Mechanics as well as general director of a Ministry of Economic Affairs program for the development of an advanced wireless biomedical healthcare monitoring system.

## National Science Council 2012 Wu Ta-You Memorial Award Recipients

Ming-wen Chu, Center for Condensed Matter Sciences

Ming-jung Ho, Department of Social Medicine, College of Medicine

Jin-ying Lu, Department of Laboratory Medicine, College of Medicine

Chien-chang Lee, Department of Emergency Medicine, College of Medicine

Pei-chun Lin, Department of Mechanical Engineering

Shau-ping Lin, Institute of Biotechnology

Chen-li Sun, Department of Mechanical Engineering

Wei-hung Kao, Department of Foreign Languages and Literatures

Feng-li Lian, Department of Electrical Engineering

Mei-jou Chen, Department of Obstetrics and Gynecology, College of Medicine

Kai-feng Chen, Department of Physics

Kai-wen Huang, NTU Hospital

Duncan Chesney, Department of Foreign Languages and Literatures

Tsung-sheng Tsai, Department of Economics

Yan-zhi Wang, Department of Management, Yuan Ze University (recently transferred to the NTU Department of Finance)

# Geoscientist Awarded for Frontline Work After Devastating Typhoon



**P**rof. Hongey Chen of the Department of Geosciences, who is associate dean of the College of Science, was among the 37 private organizations and individuals that were honored with awards by the Executive Yuan's Morakot Post-Disaster Reconstruction Council (MPDRC) for their vital contributions to reconstruction efforts in the wake of Typhoon Morakot, which caused deadly flooding and landslides when it struck Taiwan on August 8, 2009.

At an awards ceremony held on August 8, the typhoon's third anniversary, Prof. Chen was presented with a Contribution Award for leading geological survey teams in conducting safety assessments of mountain communities in the wake of the devastating typhoon. In all, the MPDRC recognized 15 private groups with Special Contribution Awards and 22 groups and individuals with Contribution Awards.

Prof. Chen played a crucial role as a representative of the academic community on the frontlines of the government-led reconstruction effort in the immediate wake of the typhoon. After the typhoon departed, the MPDRC needed to determine

Prof. Hongey Chen of the Department of Geosciences

whether the mountainous catchment areas were safe enough for the indigenous communities to return. The council recruited Prof. Chen to assemble and lead scholars and experts in undertaking safety assessments of disaster-hit villages. He organized 12 geological survey teams to visit the affected villages, which were scattered around the complex mountain terrain.

For the first stage of the assessments, Prof. Chen mobilized a total of 75 professionals, which included scholars from 14 institutions of higher education, technicians from six technical associations and experts from four private consultation firms. Accompanied by local representatives, the survey teams completed their initial surveys of 64 villages in five counties in just seven days.

Just over a month after the typhoon, the MPDRC held an official meeting in Kaohsiung to explain the results of the initial safety assessments. During the meeting, Prof. Chen personally explained the results in detail to affected residents, local council members, township chiefs and

village chiefs. Prof. Chen and his assessment teams conducted 20 meetings in total to ensure that every resident in affected areas understood clearly the safety assessment results and to inform them of the potential risks and challenges facing their homes and local environments.

The assessments revealed that over 50% of the residential areas surveyed were unsafe. Though the residents were upset and frustrated by the results, they expressed respect for the professionalism and hard work of the survey teams.

From November 2009 to May 2010, Prof. Chen and his teams conducted further safety assessments of indigenous and



non-indigenous residential areas impacted by Typhoon Morakot. During this period, they surveyed 185 residential areas in eight major catchment areas. The results were used by the government in formulating reconstruction plans for rebuilding homes and permanent infrastructure.



## EXCHANGE AND VISITING STUDENTS WELCOMED WITH ORIENTATION EVENTS



The Office of International Affairs held fun and informative orientation events and campus tours for this semester's incoming exchange and visiting students from NTU's partner universities on September 5. These events were designed to welcome these new members of the NTU family and help them get to know the campus quickly. With nearly 400 students taking part, the day's activities were a great success.

The OIA began recruiting student volunteers in mid-June to ensure that the campus tours proceeded smoothly, and ultimately assembled almost 50 volunteers. From training and planning prior to the event to setting up the tour spots and serving as tour spot managers on the day of the event, the volunteers made sure the campus tours reflected the enthusiasm and energy of NTU's students every step of the way.

The event arranged for each participating team to snap photographs of themselves at each tour spot, where they also collected points. A slide show of the students' photos was shown at the end of



the orientation events that afternoon, and the OIA presented the three teams with the most points with specially-made prizes.

The orientation events provided the students with information on selecting courses, the NTU administration, dormitories, and campus life. The

OIA also invited representatives from the National Immigration Agency to speak about visas and residence visas. The next day on registration day, a special counter was set up for international students. The orientation events also included a student club fair. This featured thrilling performances by the NTU Wind Band and Cheerleading Club that highlighted the talent and youthful energy at NTU.

NTU has strengthened its international exchanges to fulfill the goal of its Aim for the Top University Program of boosting the university's ranking among the world's most elite institutions. Since initiating its exchange



student programs, NTU has continued to expand the number of its partner universities while also steadily raising the number of exchange and visiting students coming from abroad as well as the number of NTU students who study as exchange and visiting students overseas.

Ever committed to improving its student services, the OIA expanded the scope of its orientation events and campus tours this semester. These activities provided the new NTU students with a full range of vital information to help them quickly adapt to life on the NTU campus. The plentiful activities, enthusiastic volunteers and professional service team ensured that the new students were deeply impressed by NTU's friendliness and diligence and experienced on a personal level the spirit of NTU's motto: "cultivate virtue, advance intellect; love one's country, love one's people."



## SUMMER+ PROGRAMS DRAW 143 INTERNATIONAL STUDENTS TO LEARN ABOUT TAIWAN

**N**TU offered its Summer+ Programs for international students for the third consecutive year this summer. To meet the needs of international students from different fields and backgrounds, four Summer+ Programs were offered this year: Summer Intensive Program for Chinese and Culture; Summer Program for Laboratory Research and Culture; Biodiversity, Agriculture and Culture of Taiwan; and Summer Program for Biotechnology.

The Center for International Education of the Office of International Affairs continued to organize two of these programs: the Summer Intensive Program for Chinese and Culture and Summer Program for Laboratory Research and Culture. These two programs, which ran from four to six weeks, included a series of field trips to various cultural sites in Taiwan let the students experience Taiwan's traditional culture, atmosphere of freedom and concern for the humanities.

Personnel from the OIA worked aggressively to recruit students for the Summer+ Programs this year, travelling to many countries, including the United States, Japan, China, and Australia. In the end, the programs attracted 143 students this summer, 160% more than the 55 students the previous summer. Most of the participating students came from well-known universities around the world, including Oxford University of Oxford, the University of Tokyo, the University



International students assemble for a massive group photo at the farewell party for this year's Summer+ Programs.

of California, Leiden University and Peking University.

These summer programs included four lecture courses and four days of cultural field trips. For the lecture courses, highly-experienced professors from NTU and other universities explained complicated subjects in simple terms in sharing their knowledge and experience about Taiwan's history, culture and society. For the field trips, NTU students led the international students in visiting famous sites around Taiwan, including the National Palace Museum, Yang Ming Mountain, and Longshan Temple.

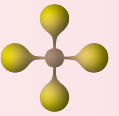
The Summer Program for Laboratory Research and Culture provided a free environment for students to learn a diversity of knowledge. Students were allowed to select from more than 30 laboratories in the natural sciences, engineering, computer science, bioagriculture, biotechnology and public health. This gave the students opportunities to work



Students play around at the Summer+ Program's farewell party.

with advance equipment and enjoy professional guidance from the professors and outstanding students working in the labs. At the same time, these students were free to take part in the field trips of the Program for Chinese and Culture, which gave them the chance to interact with the students in that program.

The Summer+ Programs ended on August 24. On that day, a student presentation event was organized to allow the international students to share the knowledge and experience they had gained at NTU and in Taiwan over the summer. That night all of the students came together for a farewell party that brought their summer in Taiwan to its official end.



# Renovated Siao Fu Commissary Offers Wider Selection of Restaurants

Here at Siao Fu Commissary you can purchase everything you need in your daily life and you can fill up your belly. You can even just sit on a bench under a tree in the courtyard to chat with a group of friends. This is the Siao Fu Commissary Area that you always hear NTU students talk about.



don't have time to sit down for a meal. The commissary's broad courtyard is often used by alumni associations and student clubs to promote their activities, adding to the lively atmosphere around the commissary. During off-hours, young lovers can be seen sitting shoulder to shoulder under a tree, a scene that is all the more touching with the Siao Fu in the background.

The red brick building in the courtyard of the NTU Administrative Building was primarily a dining hall that also sold daily necessities in the period after the arrival of the Chinese Nationalist Government in Taiwan. That's why students came to call it the Big Commissary (*da fu li she*). After the completion of the new commissary, people simply called it the Siao Fu ("Little Commissary") Commissary Area to distinguish it from the old Big Commissary. Now NTU also has another commissary called the Siao Siao Fu ("Little Little Commissary") Commissary Area.



This summer vacation, NTU decided to renovate the commissary to provide better services to students. Although construction is still underway, the Siao Fu's second-floor dining area is already open for business and a number of famous franchises have set up shop, including MOS Burger, Come Buy and Eight Way. After picking up their food, customers may eat together in a common dining area with tables and chairs with the same design and color scheme. The comprehensive planning behind the area's renovation lends to the pleasure of the dining experience there.

Situated next to the General Classroom Building and not too far from the NTU Sports Center, the area around the Siao Fu is always bustling with people. The second floor features restaurants selling fast food and boxed lunches, which is without doubt a great choice for students who are rushing off to class and



While the selection of restaurants can't meet everyone's needs, the wider number of options is undoubtedly appreciated. Indeed, students who wish to pop by for a quick bite need to keep in mind that the renovated Siao Fu is drawing throngs of hungry students during mealtimes now that school has started.



# NSC FUNDS JOINT NTU-MIT RESEARCH PROJECT IN THE HUMANITIES



Scholars from NTU and MIT recently completed a cooperative research project under the title “Cultural Movement in the Digital Age: Gender, Literary Genres, and Regional Politics of the Chinese Language World.” Three professors from NTU, Prof. Chia-ling Mei of the Graduate Institute of Taiwan Literature, Prof. Beatrice Bi-qi Lei of the Department of Foreign Languages and Literatures and Prof. Tung Shen of the Graduate Institute of Musicology, collaborated with two MIT professors, Associate Professor of Chinese Studies Emma J. Teng and Professor of Humanities Peter Donaldson, to complete this joint research project. Also, NTU graduate student Yi-hang Ma of the Graduate Institute of Taiwan Literature spent ten months studying and conducting related research at MIT.

Prof. Mei and Prof. Teng, working under the topic of cultural movements, conducted research on such issues as “marriage, body, and gender politics,” “cultural translation and transfer between the East and West,” and “newspapers and magazines and folk culture.” They also assisted Instructor Min-min Liang in establishing the Taiwan writers section of MIT’s Chinese writers website. Prof. Shen visited MIT to compile a database of the culture of Taiwan’s female Mandarin popular music singers and societal movements of the 1960s and 1970s. While there, she also carried out research on mass media,

music culture, female images and imagined China.

Prof. Lei and Prof. Donaldson collaborated on digitally archiving student Shakespeare performances at institutes of higher education in Taiwan of the 1960s and 1970s to add them to MIT’s Global Shakespeares Video and Performance Archive. This project received software and personnel support from NTU’s Research Center for Digital Humanities as well as funding from NTU. In addition to further expanding NTU’s Taiwan Shakespeare Database, the project set up web links between the MIT and NTU archives, which will give Taiwan’s accomplishments in the arts and humanities greater exposure on the world stage.

In June, Prof. Lei presented and demonstrated the functions of the Taiwan Shakespeare Database during the Sixth Conference of the NTU Shakespeare Forum, called “Shakespeare Across Media.” The teams working on the Global Shakespeares Archive and Asian Shakespeare Intercultural Archive led workshops during the conference as well. The conference allowed the teams in charge of these three databases to dialogue,

build more web links and share resources.

Graduate student Ma spent ten months at MIT’s Foreign Languages and Literatures and Comparative Media Studies programs, taking such courses as “Introduction to Asian American Studies” and “The Global Chinese?: Chinese Migration, 1567-2007,” from August 2011 to May 2012. Ma studied under the guidance of MIT’s Prof. Teng, and the two are preparing to publish a research paper together.

This project was made possible through funding provided by the National Science Council’s Longmen Project, which aims to promote international exchanges and raise research standards in Taiwan by creating opportunities for Taiwanese scholars to visit research institutes overseas. As the Longmen Project previously funded only projects in science and engineering, this joint NTU-MIT humanities research project is particularly significant because it marks the first the NSC funding project has supported an interdisciplinary cooperative research project focused on the humanities in Taiwan.

# DOCTORS PERFORM KIDNEY TRANSPLANT USING ROBOTIC SURGERY



▲ Dr. Tsai Meng-kun (fourth from right) and his surgical team cut a cake with the patient (center) who received a kidney transplant using a robotic surgical system.

On August 7, a team of doctors at NTU Hospital announced that they had achieved a new landmark in organ transplantation by using a robotic surgical system to perform kidney transplant surgery. The surgical team, made up of Dr. Lai Hong-shiee, director of the Department of Surgery, Dr. Tsai Meng-kun, Dr. Chih-Yuan Lee and Dr. Ching-Yao Yang, carried out the procedure using the da Vinci Surgical System. Despite their success, the procedure was highly challenging, since it required inserting the kidney through a small incision.

Robotic-assisted surgery is commonly used to perform many types of surgery because it is minimally invasive and provides a high degree of precision. However, it is not yet commonly used for organ transplants because the new organ limits the space available for surgical maneuvering and because of the risk of bleeding when connecting blood vessels. At present, the medical literature on such a procedure is limited to a few reports from doctors in Europe and North America.

Kidney transplants have been performed for fifty year, yet they



▲ A doctor shows how NTU Hospital performed the first kidney transplant using a robotic surgical system in Asia.

still rely on traditional surgical methods. This leaves a scar 15-20 centimeters long that can cause pain and even incisional hernias at the scar site. The team of NTU surgeons has been actively developing robotic-assisted surgery to improve surgical accuracy, limit the size of surgical scars and reduce post-surgery complications.

The patient was a 60-year-old woman who had suffered renal failure due to systemic lupus erythematosus and had been undergoing kidney dialysis for five years. Her 51-year-old brother offered to donate one of his kidneys to ease her suffering. At midday on July 27, the brother underwent minimally-invasive laparoscopic surgery to remove his left kidney. That afternoon, the doctors commenced the procedure on the recipient. After first preparing a space to place the kidney, the doctors positioned the robotic surgery system and began

the reconstruction of the renal arteries and veins. The kidney started to function immediately after it began receiving blood. The siblings recovered with no complications. The brother was discharged from the hospital on August 1 while his sister left the hospital to begin her new life on August 7.



## Students Claim First Place with Companion Robot Panda

A team of graduate and undergraduate students led by Prof. Ren C. Luo of the Department of Electrical Engineering claimed first place for overall score in the Industrial Application-Service Robot Group at the Industrial Development Bureau's 2012 Intelligent Robot Product Creativity Contest in late August. Competition was fierce as 121 teams competed for over NT\$ 1 million in prizes.

Inspired by the twin problems of an aging society and low birth rate in Taiwan, the team's entry, called the RCMO Multifunctional Companion Robot Panda, was designed to be a companion for the elderly and small children. Equipped with computer vision and a speech source localization sensor that allows for personalized settings, the cute panda robot can interact with the elderly and small children when they are left unaccompanied at home. Moreover, the robot's remote video monitoring function allows family or caregivers to check in on the situation at home at anytime.



## Two Robotics Laboratory Teams Win Competition Awards



Two Robotics Laboratory teams headed by Prof. Han-pang Huang of the Institute of Industrial Engineering have won awards at robotics competitions in Taiwan this year. At the 5th HIWIN Intelligent Robotic Arm Contest, one team took third place for overall score, first place in the domino effect category and first place in the mechanical writing category. The other team placed second in the Industrial Application-Service Robot



Prof. Han-pang Huang's robotic arm team took third place for overall score, first place in the domino effect category and first place in the mechanical writing category.

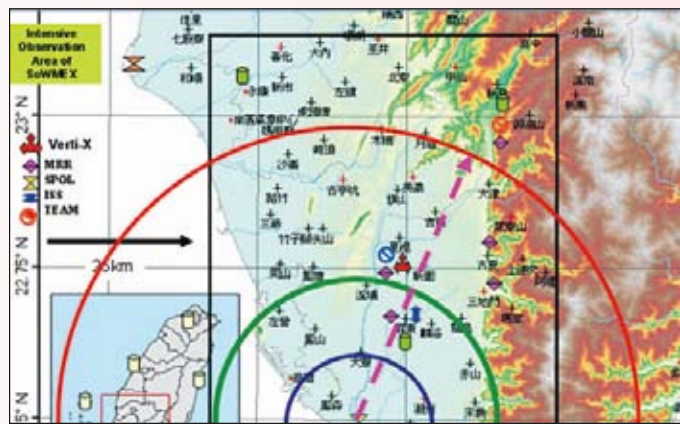
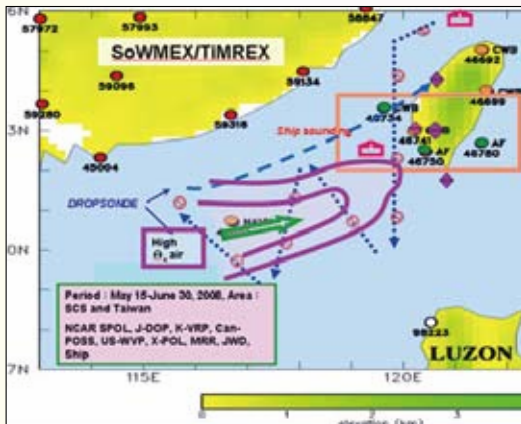
Group of the Industrial Development Bureau's 2012 Intelligent Robot Product Creativity Contest. The contests comprised part of the 2012 National Robot Competition, which was held during the 2012 Taipei International Robot Show in late August.

Prof. Huang's robotic arm team has worked actively in developing mechanical arms for years. The robotic arm that the team entered in this year's contest was a newly-built

eight-axis robotic arm called Freedom. The arm's design affords it great freedom of movement and makes good use of a unique modularized structure. Each two swivel axes constitute a module, which allows for convenient replacement. This special four-module design means the arm can also fold up on itself, making it smaller for easy storage when not in use. The control system and wiring are all located within the arm, which also facilitates rapid replacement. Moreover, the design is aesthetically pleasing because no tangle of wires and control boxes is exposed on the arm's exterior.

The service robot team used the Kinect motion sensing and voice recognition input device designed by Microsoft for the Xbox 360 video game console to build a robot called Pretty Baby that serves as a virtual valet for shoppers who want to try on new clothes. When a shopper enters a clothing store, this personable robot will follow at her side and await her command, making the shopping experience more comfortable and convenient.

# Multinational Experiment Seeks to Improve Southwest Monsoon Forecasting



The Southwest Monsoon Experiment/Terrain-influenced Monsoon Rainfall Experiment (SoWMEX/TiMREX) is an intensive meteorological field observation and heavy precipitation forecast experiment proposed by meteorologists in Taiwan and the United States that has drawn the support of weather scientists in neighboring countries, as well. The multinational experiment was first conducted over a nearly fifty day period in southwest Taiwan and over the northern extent of the South China Sea during the Asian summer monsoon season, May 15 - June 30, 2008.

The primary scientific aims of the experiment are to obtain deeper insight into: 1) the relationship between southwesterly prevailing flows and low-level jets; 2) the kinematic and thermodynamic characteristics of mesoscale convective systems; 3) the influence of terrain effects on prevailing flows and precipitation systems; 4) the processes of newly-formed convection currents and boundary layers; and 5) the development of mesoscale data assimilation techniques and quantitative precipitation forecast applications.

The main observation instruments used in the first experiment were aircraft-delivered dropsonde weather reconnaissance devices and a US National Center for Atmospheric Research S-band polarimetric Doppler radar system. In addition, eight precipitation radars manufactured by different companies as well as meteorological particle spectrometer disdrometers were used to measure the microphysical characteristics of rainfall. Sounding balloons were also released from boats to measure atmospheric conditions, and thunder and lightning data were collected to analyze the microphysical characteristics of rainfall.

SoWMEX/TiMREX is an ongoing project for data collection and analysis. During each southwest monsoon season since 2008, meteorologists have carried out field observations using dropsondes and taken rainfall measurements.

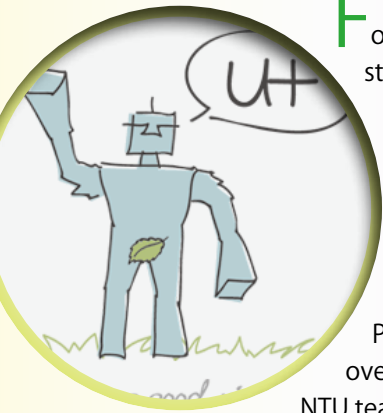
Annual SoWMEX/TiMREX Science Workshops have been held in Taipei every fall since 2008. These workshops bring together meteorologists from Taiwan and around the region and world

to present research papers and engage in dialogue concerning the southwest monsoon to better understand the monsoon and develop practical forecasting applications. Thirty to 40 papers are presented at each workshop. Some of the meteorologists are working to develop methods for nowcasting, which refers to the forecasting of weather within the next six hours.

The importance of the precipitation system data collected and analyzed by SoWMEX/TiMREX was highlighted by the deadly Typhoon Morakot, which made landfall in Taiwan on August 8, 2009, causing severe flooding and landslides. Much of the extreme rainfall brought by the typhoon fell within the observation range targeted by SoWMEX/TiMREX. The experiment's research findings are playing an important role in improving the forecasting of typhoon rainfall volumes.

SoWMEX/TiMREX is supported by funding provided by the National Science Council and Central Weather Bureau in Taiwan and the National Science Foundation and National Center for Atmospheric Research in the United States.

## Student Team Claims Machine Vision Prize for Fourth Year Running



For the fourth year running, a student team from the Biophotonics and Bioimaging Laboratory of the Department of Bio-Industrial Mechatronics Engineering, College of Bioresources and Agriculture, won the top prize in the Utechzone Machine Vision Prize competition in May. After over two months of preparations, the

NTU team progressed steadily from the first round to the finals, outperforming 13 teams from Taiwan and China, to claim the top prize of NT\$500,000. The team officially accepted its award at the 25th IPPR Conference on Computer Vision, Graphics, and Image Processing on August 13.

This highly professional annual competition, which has been held seven times, is sponsored by Utechzone Co., a local company that mainly designs, manufactures, and distributes automated optical inspection systems, including a line of intelligent vision security products for surveillance. Co-sponsors include Taiwan's Image Processing and Pattern Recognition Society and Automated Optical Inspection Equipment Association as well as the China Society of Image and Graphics.

Utechzone established the competition to foster the laying of a solid foundation for developing the machine vision industry by strengthening this field in theory and practice and encouraging research and development and the creation of innovative applications. Since imaging technology for facial recognition has been widely applied in digital cameras,

mobile telecommunications, biometric recognition, and security systems, the competition presented the student teams with the difficult challenge of dealing with both academic theory and industrial application.

Like last year, this year's competition chose facial recognition as its main theme. It covered the four topics of gender recognition, facial recognition, facial expression recognition, and age recognition. Organizers increased the level of difficulty by adding complicated background interference and selecting people at random from the audience to take the stage to be identified. During the nearly two-hour-long competition, the main challenges for the teams were proving the stability of their software and its accuracy in the four recognition categories. Each team received a score while demonstrating its system in real time. The teams that progressed to the final round were also required to present their papers on stage.

The team members— An-chih Tsai, Yu-hui Yeh, Kai-chiang Chuang, Chih-shuan Shih, Wei-chang Chong, Ting-yu Liou, and Tsung-han Hsieh— worked under the guidance of Prof. Ta-te Lin. They faced stiff competition, including teams from Taiwan's National Tsinghua University and National Taiwan University of Science and Technology and China's Anhui University. Nonetheless, the NTU team relied on teamwork and the spirit of determined competitiveness to best the other competitors and defend their crown. The continued top-rate performances of the students of the Department of Bio-Industrial Mechatronics Engineering provides further evidence of the strength of this department in machine vision.





## NTU Named Champions at Prestigious Data Mining Competition Again



A team led by Prof. Shou-de Lin and Prof. Hsuan-tien Lin of the Department of Computer Science and Information Engineering has proven again NTU's preeminence in the field of data mining. At the 18th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, held in Beijing, August 12 -16, the NTU

team was named the champion of the click-through rate prediction category of this year's ACM KDD Cup. This is the fifth consecutive year that an NTU team has won an award in this prestigious competition. NTU teams previously claimed first place in the cup in 2008, 2010 and 2011. This year, the competition attracted over 900 teams from leading universities and research institutions around the globe, including Stanford University and IBM Research.

The Special Interest Group on Knowledge Discovery and Data Mining of the Association for Computing Machinery has held the ACM KDD Cup every year since 1997. The cup is recognized as the most important international competition in data mining. The themes of the annual competition are selected from the hottest topics in the field; they are not only intellectually challenging but of massive commercial value.

The two competition tasks at this year's cup were Social Network Mining on Microblogs and User Click Modeling Based on Search Engine Log Data. The first task required teams to "predict which users a given user will follow, among all potential users," while the second challenged them to "accurately predict the ads' click-through rate in online computational ad systems." The second task presented the competitors with more than 150 million data items, the largest volume of data ever in an ACM KDD Cup. The accurate prediction of click-through rates is of great commercial value to online advertising because they are used to measure the success of advertising campaigns, and therefore to determine advertising rates.

#	ASW Team Name	MAP@C Subtask (Best Submission - Log)	Last Submission UTC
1	NTU	0.4207 82	Thu, 10 May 2012 00:13:29
2	NTU	0.4200 146	Thu, 10 May 2012 00:43:50 (-0.26)
3	NTU	0.4157 70	Thu, 10 May 2012 01:17:04 (-0.26)
4	NTU	0.4013 7	Thu, 10 May 2012 00:26:47
5	NTU	0.2937 40	Sat, 05 May 2012 08:26:05

## Student Team Takes Top Prize at 2012 TECO Green Tech Contest



NTU's champions of the 2012 TECO Green Tech Contest show off their prizes.

A team of students from the Graduate Institute of Mechanical Engineering bested 159 teams to be named champions in the finals in the 2012 TECO Green Tech Contest in late August. Team members Chun-lin Liu, Yi-tseng Li, Wen-fu Luo, Hsien-chin Su and Chea-seng Lim were advised by Prof. Hsiao-kang Ma. Their winning innovation was the Super Low Power-Consumption Piezoelectric Fan Cooling System.

Dissatisfied with the high energy consumption of traditional cooling fans, the team applied innovative technology based on the piezoelectric effect, magnetomechanical effect and resonance effect to design a piezoelectric actuator that can power five, seven or even 14 fan blades to achieve a continuous cooling effect. Their system uses only 0.2 watts of power, or only 2-5% of that consumed by traditional spinning fans. The team hopes that the fixed heat sinks commonly used these days can be combined with their innovative cooling system to improve cooling and reduce energy consumption.

## Student Entrepreneurs Create Fun Name Card for Travelers



Three enterprising students enrolled in the Creativity and Entrepreneurship Program have come up with a novel way for Taiwanese travelers to let the people they meet on their journeys know who they are and exactly what country they come from. The students are Hao-yu Yang of the Department of Business Administration, Pei-ya Chiou of the Department of Computer Science and Information Engineering and Feng-jun Hsiong of the Graduate Institute of Psychology. Their

simple yet fun creation is called the ICardFrom.

The ICardFrom is basically a souped-up name card for travelers. The front depicts a section of a world map with a line connecting Taipei to the capital city of the country the traveler will be visiting. It shows the distance in kilometers between the two capitals as well as the two countries' national flags. For the back, users have two options: either simply a QR code for the user's Facebook page or the QR code plus the user's name and contact information.

The young entrepreneurs see the ICardFrom as a great accessory for backpackers and students studying abroad. They say the card is not just a personal name card, but also a name card for the nation that helps promote Taiwan to the world. Moreover, the cards are great conversation starters and can be saved as souvenirs of one's travels.

The students run an ICardFrom website (<http://icardfrom.herokuapp.com/>) for online orders as well as a Facebook fans page.

## Giant Fish Wins Aquatic Robot Competition in Japan

A team of graduate students from the Underwater Vehicle Lab outperformed teams from ten universities and research institutes to take first place at the 2012 Aquatic Robot Competition held by the Japan Agency for Marine-Earth Science and Technology in early September. The team advisor was Prof. Jen-haw Guo of the Department of Engineering Science and Ocean Engineering. The team members were master's students Po-Wei Wu, Yu-Fu Wang, Hector Liu, Jui-Yi Wang, Yan-hong Chen and You-cheng Lin, and PhD student Sheng-wei Huang.

The robot fish was jointly developed by the NTU laboratory and the National Museum of Marine Science and Technology Preparatory Office for the purpose



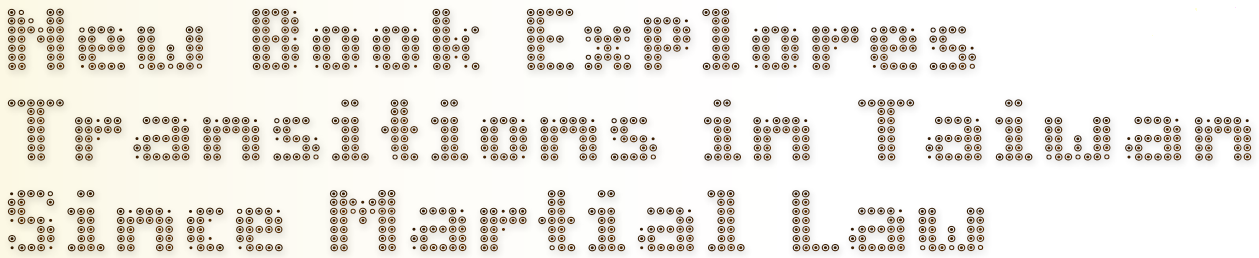
Prof. Jen-haw Guo and his team from the Underwater Vehicle Lab flash their winning smiles behind their robot Giant Fish.

of demonstrating to museum visitors the principles of propulsion, tracking control and video image processing, so the visitors can understand the movement of aquatic organisms.

The team's aquatic robot, which looks like a big clown fish, is named Giant Fish because it is 80 centimeters long and weighs

approximately 20 kilograms. Its exterior is a combination of a hard plastic body and flexible rubber tail. Powered by a lithium-polymer battery, it can swim for up to six hours at a rate of 0.5 meters per second. Propulsion is provided by a motor in the robot's tail that swings the tail from left to right. Depth and direction are controlled by immediate feedback from a water pressure meter and electronic compass, respectively. The fish's eyes are a two-lens camera that affords it with stereoscopic vision. Pressure sensors on its sides allow it to avoid collisions.

A video of the Giant Fish in competition is available on YouTube at <http://www.youtube.com/watch?v=7CPd4Dct-jA>.



NTU Press published *Taiwan and Its Contexts* in August. This collection of essays is divided into four sections that explore the major transitions that have occurred in Taiwan since the end of martial law in 1987.

In the section "Economy and Politics," Cyrus Chin-yi Chu and Ruoh-rong Yu analyze economic models and cultural values based on family structures in Taiwan and China, and Joseph Wong looks at the biotechnology industry to discuss the fall of Taiwan's economy from the top of the Four Asian Tigers to the bottom.

In "History and Memories," Kang-i Sun Chang analyzes the influence of the February 28 Incident on Taiwan's culture and history, and Xiaojue Wang analyzes the divided and counterposed cross-strait ideologies of the Nationalist Party and Communist Party in 1949.

In "Literature and Arts," David Der-wei Wang explores the changes in Wenye Jiang's musical career in light of different historical, cultural and political circumstances, and Ling Chung looks at female poets to discuss modern feminism.

In "Societal Contexts," Fran Martin explores transgressive sex in Taiwan literature through an examination of queer culture, Ching-ming Ko analyzes the influence of the spirit of Peking University on NTU and Ping-hui Liao discusses the disappearance of Taiwan's intellectuals by looking at both internal and external factors in the periods after 1987.



# NTU Ranked 80th in the World

NTU is the 80th best university in the world according to the recently released 2012 QS World University Rankings. This is an improvement of seven spots over the university's 87th-place ranking last year, and is our highest position in the QS Rankings to date.

Our composite score rose from 66.6 points in the last ranking to 69.9 points this year. The primary reason for NTU's continued climb in the rankings is that it witnessed a significant increase in the total number of citations in academic papers as well as the average number of citations per faculty member since last year's ranking.

NTU will continue to build on its firm foundation in research, hire international faculty and educate exceptional students. We will also continue to pursue joint research projects with elite international universities and research institutes. Our aim is to make NTU one of the world's finest places for international academic research.



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