

NTU



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NTU Comes Out in Full Bloom for its 79th Anniversary Convocation

President Lee Visits Oxford

Kowtow to 3 IEEE Fellows

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Gene Transfer Breakthroughs

EE Students Win ACM Top Honors

Special Report
Bravo to 79th Anniversary!

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Modernist Author Wang Wen-hsing, Quanta Founder Barry Lam Awarded Honorary Doctorates, Nine Outstanding Alumni Receive Commendations at 79th NTU Convocation

NTU celebrated both the 79th anniversary of its founding and the 62nd anniversary of its renaming by holding a massive anniversary convocation at the NTU Sports Center on November 15th. The highlights of the ceremony came when modernist author Professor Wang Wen-hsing and Quanta Computer founder and chairman Barry Lam were presented with honorary doctorates and nine outstanding alumni were singled out for special commendation. NTU President Lee Si-chen presided over the convocation, which was attended by former NTU presidents as well as distinguished guests from Taiwan and abroad. Moreover, the return of so many alumni filled the campus with familiar faces and created a fittingly festive atmosphere for this special birthday celebration.

Wang Wen-hsing, a prime mover in the introduction of modernist literature in Taiwan, has been dedicated to literary pursuits for the last 50 years and has been an educator of exceptional talent for 40 years. After setting in motion a wave of Taiwanese modernist writers, Professor Wang engrossed himself in his writing, opening up new realms of creation for the Chinese-language novel. His novels *Family Catastrophe* and *Backed Against the Sea* are remarkable for their detached and innovative style and profound portrayals of humanity and society. Wang stands among the elite of contemporary Chinese-language men of letters, and his numerous translated works have attracted keen interest in international literary circles. Through his relentless efforts, he has succeeded in creating extraordinary works of literature and, as a person and a writer, he now serves as a precious role model for succeeding generations of writers.

Barry Lam has long been involved in computer R&D and manufacturing and was at the forefront of the development of Taiwan's information technology industry. He founded Quanta Computer in 1988 and later established Quanta Culture and Education Foundation in 1999. Lam, whose business philosophy is to keep his roots firmly in Taiwan while cultivating new technology, opened Quanta Research Institute here in Taiwan in 2000.

Honorary Doctorates of 2007



Left: NTU president Lee Si-chen presents writer Wang Wen-hsing (right) with an honorary doctorate.
Right: Quanta Computer chairman Barry Lam speaks during the anniversary convocation.

In 2004, he began to collaborate with the Massachusetts Institute of Technology to develop next-generation computers and communication platforms; and pressed NTU to work actively with the world's leading R&D institutions in these areas. Then, in 2005, the Quanta chairman initiated the One Laptop Per Child project in order to reduce the high-tech knowledge gap and provide solutions to educational problems in third-world nations.

Professor Wang and Mr. Lam's academic and professional achievements have made them ideal role models and the perfect representatives of the NTU school motto, "Mold thy character and sharpen thy knowledge, love thy country and thy people." In recognition of their outstanding achievements and contributions NTU conferred honorary doctoral degrees upon these two remarkable people.

The nine NTU alumni honored during the convocation included Mr. Yu Kuang-chung, Ms. Lin Wen-yueh and Mr. Lu Shao-chia in the arts and humanities category; Mr. Tsai Chen-shui, Mr. Chu Kwo-ray and Mr. Paul Chen in the academic category; Mr. Tsai Ming-kai and Mr. Jonney Shih in the business category; and Mr. Richard Lee in the community service category. Each of these extraordinary individuals has been invited to speak on the topic, "NTU Lecture on the Intellectual and Spirit Pilgrimage," during an upcoming lecture series in order to share their professional achievements and their struggles to succeed.

NTU's Outstanding Alumni of 2007

Arts and Humanities: Mr. Yu Kuang-chung (Department of Foreign Literature, Class of '54)

Yu is an internationally famous poet and writer who has headed foreign language and literature departments at universities in Taiwan and currently serves as a chair professor at National Sun Yat-Sen University. Over a half century ago, he used his strong foundation in classical Chinese literature and training in British and American literature to create new forms of modern Chinese poetry. Yu is known for his emphasis on the beauty of Chinese culture and has had a wide influence through his writings in both Chinese and international literary circles.

Arts and Humanities: Ms. Lin Wen-yueh (Department of Chinese Literature, Class of '56)

Lin, a professor emeritus in the NTU Department of Chinese Literature, is a leading world expert in classical Chinese and Japanese literature. She is renowned for her academic research as well as her literary creations and translations. Lin's innovative interpretations of the literature of the period of China's Six Dynasties have brought her international acclaim, while her contributions to the translation of Chinese and Japanese literature have led to her being regarded as the most important scholar of Chinese literature of the last one hundred years.



NTU president Lee Si-chen speaks at Anniversary Convocation.

Arts and Humanities: Mr. Lu Shao-chia (Department of Psychology, Class of '83)

Lu is a world-renowned symphony and opera conductor. His fame began to rise after he was invited to step in for the ailing conductor of the Munich Philharmonic during its tour of Taiwan in 1994. Since then, he has led and collaborated with symphony orchestras and opera houses around the world, including Komischen Oper Berlin, Staatsorchester Rheinische Philharmonia and Niedersächsische Staatstheater Hannover. Lu along with his Niedersächsische Staatstheater Hannover were named Conductor of the Year and Best Opera House of the Year by the German opera magazine Die Opernwelt.

Academic: Mr. Tsai Chen-shui (Department of Electrical Engineering, Class of '57)

Tsai began his career as a missile researcher at the Lockheed Palo Alto Research Center in the late 1960s and is currently a senior professor in the Department of Electrical Engineering and Computer Science at the University of California, Irvine. He is a leading figure in the basic research of guided-wave acoustooptics and magneto-optics, acoustic microscopy and wideband ferromagnetic microwave devices and has accepted memberships in such influential societies as IEEE, the Optical Society of America, SPIE and the American Association for the Advancement of Science.

Academic: Mr. Chu Kwo-ray (Department of Physics, Class of '65)

Chu is a professor in the Department of Physics at National Tsing Hua University. His research is focused on plasma physics and the generation of coherent electromagnetic waves via the electron cyclotron maser, which is a fundamental element of relativistic electronics. He invented and demonstrated a record-breaking Ka-band gyrotron traveling wave amplifier, which is being developed in the United States to improve space radars. Chu has also brought his expertise to the enhancement of Taiwan's national defense radar system.

Academics: Mr. Paul Chen
(Department of Law, Class of '66)

Chen has taught law in Japan for over 20 years as a professor at Aoyama Gakuin University and is professor emeritus at the University of Tokyo, where he is the only ethnic Chinese person on the law faculty. He has achieved extraordinary success in his research of comparative law and as a result developed an academic following in England and Japan. Notably, his English-language books include *Chinese Legal Tradition under the Mongols* and *The Formation of the Early Meiji Legal Order*.

Business: Mr. Tsai Ming-kai
(Department of Electrical Engineering, Class of '71)

Tsai is the chairman of MediaTek Inc., the company he helped build into one of the world's premier fabless IC design firms. Known for his professionalism and focus on research, Tsai is credited with making Taiwan a global leader in IC design and is a famous proponent of IP rights in Taiwan. This godfather of IC design in Taiwan has sponsored the establishment of foundations and centers to promote the continuous development of technology education and research in Taiwan.

Business: Mr. Jonney Shih
(Department of Electrical Engineering, Class of '74)

Shih is CEO and chairman of Asustek Computer Inc., the world's leading manufacturer of motherboards and graphics cards. Shih places a strong emphasis on the creation of high brand

value and has earned, through his company, numerous industry and industrial design awards. In 2006, Asustek's motherboards accounted for over 40% of the global market, while its ASUS brand notebook computers stood as the ninth largest notebook brand in the world. Shih's philanthropic efforts have included the promotion of environmental education and the provision of financial support to schools in Taiwan's more remote areas.

Community service: Mr. Richard Lee
(Department of Electrical Engineering, Class of '61)

Lee is a professor in both the Department of Computer Science

and Information Engineering and Department of Information Management at National Chi Nan University. He is a well-known spokesman for poor children and the disadvantaged, and has written extensively regarding the need for social compassion and the protection of disadvantaged groups. He is also a leading advocate of educational fairness and English language learning. He has personally taught English to poor children in the mountains of Hsinchu County for over ten years. Lee is also an accomplished academic who is regarded as having one of the best mathematical minds in Taiwan.

Outstanding Alumni of 2007



The nine NTU alumni honored during the convocation were Ms. Lin Wen-yueh(1), Mr. Yu Kuang-chung(2) and Mr. Lu Shao-chia(3) in the arts and humanities category; Mr. Tsai Chen-shui(4), Mr. Chu Kwo-ray (5) and Mr. Paul Chen (6) in the academic category; Mr. Tsai Ming-kai (7) and Mr. Jonney Shih(8) in the business category; and Mr. Richard Lee(9) in the community service category.

NTU Team Joins Taiwan Delegation in Attending EAIE Conference in Norway

The Office of International Affairs led a team of NTU faculty to attend the annual conference of the European Association for International Education in Norway in September as part of a delegation of Taiwanese higher education experts headed by the Ministry of Education. While Taiwan has made its presence known at the conference over the years, this marks the first year the nation's delegation managed to gain a speaking session slot exclusively for the promotion of higher education in Taiwan.

NTU has sent representatives to the EAIE Conference each of the last three years and this year its voice was presented by Deputy Dean of International Affairs Dr. Leung Yan-wing and Tseng Shu-hsien, an international student advisor in the NTU Office of International Affairs. With more than two hundred conference participants in attendance, Dr. Leung spoke on the benefits and types of higher education in Taiwan, while Ms. Tseng lectured on the topic, "Who Do You Talk To? Do You Address All the Right People When Marketing Your Institution?" to share her first-hand experience in recruiting foreign students from all over the world.

The 41-member Taiwan delegation was headed by Minister of Education Tu Cheng-sheng and included educators from 19 universities around the nation as well as experts from the Foundation for International Cooperation in Higher Education of Taiwan. The foundation is highly appreciated for the wonderful booth and presentation it arranged for this year's conference. Taiwan's booth was the most popular and attractive one among some 76 booths at the venue.

The MOE is dedicated to the promotion of higher education in Taiwan, and with each passing year it achieves greater success and creates wider publicity for Taiwan at the EAIE conference. A growing number of Taiwanese educators are participating in the conference as exhibitors, participants, and, for the first time this year, as speakers.

EAIE was founded in 1989 and is the largest

In the EAIE Conference

Dr. Leung spoke on the benefits and types of higher education in Taiwan, while Ms. Tseng lectured on the topic, "Who Do You Talk To? Do You Address All the Right People When Marketing Your Institution?" to share her first-hand experience in recruiting foreign students.



association for international educators in Europe. The 1,600-member non-profit organization is comprised of professional educators from around the world and strives to promote and facilitate the internationalization of education within Europe and around the globe. The EAIE Secretariat is based in Amsterdam, the Netherlands, and the association holds an annual conference in a different European city each year. This year, the 19th annual conference was held from September 12 to September 15 in Trondheim, Norway.

The conference always offers more than just exhibitions and speaking sessions; it provides great opportunities for networking and exchanging ideas with international educators and for gaining new information.

NTU Sets New Records in Joint Projects with Top Universities in the UK and France



Enjoying the support of the Ministry of Education's excellence in higher education initiatives, all universities in Taiwan are beginning to take a proactive approach towards internationalization. As the leading university in Taiwan, NTU was one of the earliest among all universities to initiate global networking efforts, and now boasts more than 250 partner institutions and 118 exchange student agreements in 43 countries on five continents.

At the beginning of October, NTU President Lee Si-chen led a delegation from NTU, including the Dean of International Affairs and five deans from the colleges of Liberal Arts, Science, Social Sciences, Medicine, and Engineering, on a five-day tour of eight top universities in the UK and France.

The delegation visited the University of Oxford, University of Cambridge, School of Oriental and African Studies and King's College London in the UK, as well as Pierre and Marie Curie University (Univ. Paris 6), Paris-Sud University (Univ. Paris 11), École Polytechnique and École Normale Supérieure de Cachan (ENS de Cachan) in France. These are all well-established and top-ranking universities in the world. The NTU delegation was received by the university heads during each visit and signed agreements for joint academic projects and student exchanges with SOAS and Univ. Paris 6 while visiting those institutions.

Since universities, such as Oxford and Cambridge, are made up of independent colleges, the delegation members visited different colleges according to their own specializations in research, student exchange and dual-degree programs.

1. NTU President Lee Si-chen presents a painting and calligraphy to the University of Cambridge.

2. NTU President Lee Si-chen signs a cooperation and exchange agreement with Pierre and Marie Curie University in France.

3. NTU President Lee Si-chen signs a cooperation and exchange agreement with the School of Oriental and African Studies in England.

4. NTU President Lee Si-chen, accompanied by NTU graduate and world-renown law scholar Dr. Paul Chen, poses with campus representatives of the University of Oxford.



Visit of Top Universities

One of the key purposes of this visit was to discuss potential dual degree programs, a subject that drew positive responses from most schools. For instance, NTU has two dual degree programs with ENS de Cachan, and will develop a third under the Erasmus Mundus project. Another key issue was academic exchanges, and every school visited acknowledged NTU's academic strengths. Lincoln College of the University of Oxford proposed a joint research project in Austronesian Studies with NTU's College of Liberal Arts, while both Cambridge and SOAS expressed great interest in the studies of Taiwan and China at NTU. In addition, the institutions visited in France expressed their desires for further collaboration in a variety of research fields, including nanotechnology, electronic engineering, computer science and applied mechanics, and suggested realizing such collaborations through mutual visits, short-term professor exchanges and joint conferences.

University Presidents from China, Hong Kong, Macau and Taiwan Meet for Cross-Strait Conference in Taiwan



NTU President Lee Si-chen (middle) stands for a group photograph with university presidents from Macao, Hong Kong and China following the Third Cross-Strait University Presidents Conference.

The Third Cross-Strait University Presidents Conference was held in Taiwan in late July. Initiated originally by President Xu Zhihong of Beijing University, NTU and Soochow University co-organized this annual event this year. The previous two years, the conference took place in the cities of Nanchang and Kunming in China, and NTU was honored to host the conference in Taipei for the first time.

More than twenty presidents from prestigious universities took part in the forum and related friendship activities. It was NTU's privilege to receive the Chairman of China Democratic Leagues Jiang Shusheng and his wife Wu Juejue, as well as the presidents of eight universities in China, which, in addition to President Xu of Beijing University, included President Wang Shenghong of Fudan University, President Yang Wei of Zhejiang University and President Chen Jun of Nanjing University. Vice Chancellor Tsui Lap-chee of Hong Kong University and Rector Pan Iu-vai of Macau University also attended.

President Liu Zhaozuan of Soochow University

and NTU President Lee Si-chen did an excellent job of co-hosting this gathering of university presidents. The purpose of assembling these eminent university presidents every year is to foster friendship between these outstanding leaders across the straits in order to come up with better ideas for improving the quality of higher education.

The presidents and their wives also took time to visit beautiful Sun Moon Lake, walk in the fragrant green forests of the Chitou Forest Recreation Area and observe the NTU Experimental Farm. The visitors were amazed by the research exhibitions and the quality of forest management at Chitou, an area that serves as a model for building friendly channels for connection between an academic research area and the public. They also visited Alishan National Park to catch a glimpse of the sunrise, a popular event for visitors from China. Besides taking in Taiwan's spectacular landscapes, these honorable guests also visited Formosa Plastic Corporation's No.6 Naphtha Project and took a ride on the Taiwan High Speed Rail back to Taipei.

COBA Program Promotes Biotechnology Training for Agricultural Personnel from Southeast Asia in November

The NTU College of Bioresources and Agriculture's Center for International Agricultural Education and Academic Exchange together with the Center for Biotechnology hosted the Agricultural Biotechnology Training Workshop in Partnership with the Philippines and Other Southeast Asian Countries on the NTU campus from November 3rd to November 11th. The program provided nine days of intensive instruction to outstanding agricultural biotechnology technicians from Taiwan and across Southeast Asia on such topics as basic genetic manipulation, genetically modified food testing, plant pathogen identification and plant gene transfers. It served as a form of technology diplomacy and raised Taiwan's assistance in the training of international agricultural technicians to the level of biotechnology. Moreover, the program laid the foundation for the further development of Taiwan's agricultural biotechnology industry within Southeast Asia.

Each of the program participants is deeply involved in the field of agricultural biotechnology in his or her home country. In addition to five participants from Taiwan, one came from Cambodia, three from Indonesia, three from Malaysia, eight from the Philippines, three from Thailand and four from Vietnam. Two hours of classroom instruction and six hours of practical training were provided each day during the program. The participants were also



taken on a day trip to Ilan County on Taiwan's east coast to visit King Car Biotechnology Industrial Company and Academia Sinica's Coastal Workstation.

The international students worked closely with professors and students from the College of Bioresources and Agriculture to gain a deeper understanding of recent advances in biotechnology education and research. They all expressed the desire to participate in similar programs in the future and said they hoped the program could be elevated to a degree-level course. The College of Bioresources and Agriculture plans to use this program as a foundation for recruiting even more students from abroad who wish

to specialize in biotechnology.

This program required international collaboration as well as cross-ministerial cooperation within Taiwan. Contributing organizations included the Food and Fertilizer Technology Center for the Asian and Pacific Region, Science and Technology Policy Research and Information Center of Taiwan's National Applied Research Laboratories, and Southeast Asian Regional Center for Graduate Study and Research in Agriculture; the National Science Council, Council of Agriculture and American Institute in Taiwan provided support.

College of Medicine's Dr. Chen Ding-shinn Awarded Presidential Science Prize for Fight Against Liver Disease

President Chen Shui-bian, on November 2nd, presented Dr. Chen Ding-shinn of the NTU College of Medicine with the Presidential Science Prize in recognition of his extraordinary contributions to the medical sciences, especially in the fight against viral hepatitis and liver disease.

Dr. Chen has spent over thirty years researching and treating hepatitis. In the 1970s, he developed a nationwide hepatitis B vaccination program for Taiwan and helped the nation manufacture a test reagent for the hepatitis C virus that greatly diminished the chances of acquiring hepatitis C through blood transfusions.

The researchers Dr. Chen has led at NTU have achieved many remarkable medical breakthroughs and have produced over 500 high-quality scientific papers. Dr. Chen's hepatitis B vaccination program became the first such program to be carried out by a national government when it was first implemented in the 1980s. In the years since then the program has succeeded in lowering the hepatitis B carrier rate among children in Taiwan to less than 1%. It is estimated that this has prevented 700,000 to 800,000 people from becoming carriers and 200,000 people from dying due to cirrhosis of the liver and liver cancer.

In the treatment of chronic hepatitis C, Dr. Chen along with fellow NTU professor Dr. Lai Ming-yang changed the traditional method of using a single interferon for treatment by being the first to combine the antiviral drug ribavirin with pegylated interferon alpha. They discovered that this succeeded in curing around 50% of patients with chronic hepatitis C. The medical community has recently confirmed that this method can achieve a curative rate of around 65%. Moreover, for those patients with hepatitis C virus genotypes 2 and 3, the curative rate rises to over 90%. This combination therapy is acknowledged around the world as the best treatment for this form of hepatitis.

More information about Dr. Chen is provided in



Appointments:

Chairman of the Hepatitis Control Committee of the Taiwanese Government
 Dean of the National Taiwan University College of Medicine

Experiences:

- 1983** Professor, Department of Internal Medicine, National Taiwan University College of Medicine
- 1992** Member of Academia Sinica (the National Academy)
- 1996~98** President of the Taiwan Association for the Study of the Liver
- 1997~2003** President of the Gastroenterological Society of Taiwan
- 2000** Vice President of the International Association for the Study of the Liver (IASL)
- 2001~** President of the Formosan Medical Association
- 2001~** Dean of the National Taiwan University College of Medicine

English at http://ntuh.mc.ntu.edu.tw/med/english/doctors/Doctors_detail.asp?serial_id=98

Noteworthy Achievements:

- ▶ Associate editor of the medical journals *Hepatology* and *Journal of Biomedical Science*
- ▶ Published more than 430 original articles in scientific journals
- ▶ Member of the United States National Academy of Sciences (admitted in 2005)

Three New Fellowships Bring Number of CEECS Professors Named IEEE Fellows to 21

Three professors from the College of Electrical Engineering and Computer Science, Dr. Wu Ja-ling, Dr. Wang Chornng-kuang and Dr. Li Pai-chi, were named to the IEEE fellow class of 2008 on November 18th. This marks the ninth consecutive year that professors from the CEECS were selected as IEEE fellows and raises the number of CEECS professors that have earned IEEE fellowships from 18 to 21.

With the IEEE electing only one tenth of one percent of its members for fellowships each year, competition for the organization's fellowships at major institutions around the world is intense. The CEECS's performance in this regard puts it on a par with leading universities in the United States and places it at the top of the list among universities in Taiwan. More importantly, the honors awarded to these talented professors reflect the preeminence of NTU's research in the fields of electrical engineering and computer science.

Dr. Wu Ja-ling, a professor in the Graduate Institute of Networking and Multimedia and Department of Computer Science and Information Engineering, received his IEEE fellowship "for contributions to image and video analysis, coding, digital watermarking and rights management." Dr. Wu's research specializations are multimedia information compression, digital content analysis and intellectual property rights protection technology. His website is located at <http://www.cmlab.csie.ntu.edu.tw/cml/dsp/prof-wu/prof-wu.html>.

Dr. Wang Chornng-kuang, a professor in the Department of Electrical Engineering and Graduate Institute of Electronics Engineering, was recognized by the IEEE "for contributions to communications circuit design and for leadership in promoting the profession." His primary fields of research are analog RF VLSI (Very Large Scale Integration) circuit design and mixed-mode system VLSI circuit design. Bio-medical system circuits and RF front-ends for 60GHz communication systems are among his research accomplishments. Dr. Wang's website can be found at <http://www.ee.ntu.edu.tw/bio?id=46>.

Dr. Li Pai-chi, director of the newly-established Graduate Institute of Biomedical Electronic and Bioinformatics, was elected for his IEEE fellowship "for contributions to ultrasonic imaging technologies." Dr. Li aims ultimately to improve the clinical and research value of biomedical ultrasound. His research is focused on biomedical applications of ultrasonic imaging and aims to arrive at a better understanding of the underlying physical mechanisms of ultrasonic imaging and signal processing algorithms. His current areas of research include nonlinear ultrasonic imaging, high frequency imaging, elasticity imaging and digital beamformer design. Dr. Li's website is <http://www.ee.ntu.edu.tw/bio?id=59>.

Major Research Areas

Dr. Wu Ja-ling:
multimedia information compression, digital content analysis and intellectual property rights protection technology



Dr. Wang Chornng-kuang: Analog RF VLSI Circuit Design, Mixed-Mode System VLSI Circuit Design.

Dr. Li Pai-chi:
Biomedical Engineering, Signal Processing, Ultrasound Imaging .



NTU EE Students Claim Top-Two Prizes at Olympics of Computer-Aided Design

Teams of graduate students from NTU's Graduate Institute of Electronic Engineering and Graduate Institute of Electrical Engineering took both first and second place in the ACM/SIGDA CADathlon Programming Contest at the 2007 International Conference on Computer-Aided Design, which took place in San Jose, California, from November 5-8. In doing so, the two NTU teams outperformed 19 competing teams from North and South America, Europe and Asia and the winning NTU team become the first team from outside of North America to win the top honor in the annual competition. Though a team from the University of California, Berkeley, tied with the second-place NTU team, this marked the first year that teams from the same institution have claimed the contest's top two prizes. NTU now ranks alongside prestigious Massachusetts Institute of Technology, UC Berkeley, and University of Michigan as one of the only four universities to win this global academic competition.

The ACM (Association for Computing Machinery) is the world's most authoritative academic association for computational science research and its annual Turing Award is considered the Nobel Prize of the computational sciences. The association's CADathlon, held each year at the ICCAD, the world's premier conference for electronic design automation, draws teams of graduate students from leading universities around the world and is regarded as the Olympics of the

About The ACM



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The first place trophy for the ACM/SIGDA CADathlon.

1. The champions of the 2007 ACM/SIGDA CADathlon pose with members of the ICCAD executive committee.
2. NTU professor Dr. Huang Chung-yang stands beside the winning NTU graduate students.
3. CADathlon chair Matthew Guthaus presents NTU graduate students Chen Dongjie (left) and Jiang Zhe-wei (right) with their awards at the opening ceremony of the 2007 ICCAD.
4. CADathlon chair Matthew Guthaus presents NTU graduate students Tang Kai-fu (left) and Wu Ji-an (right) with their awards at the opening ceremony of the 2007 ICCAD.

electronic design automation world.

As a result of the stellar performances of the NTU teams at this year's CADathlon, general chair for the 2008 ICCAD, IBM's Dr. Sani Nassif, has invited Dr. Chang Yao-wen, a professor in the Graduate Institute of Electronics Engineering and Graduate Institute of Electrical Engineering --advisor to the winning NTU team --to serve on the conference's executive committee. Dr. Nassif will also lead a delegation to Taiwan in February 2008 in order to further interaction between the ICCAD and Taiwan and explore the possibility of holding the conference and CADathlon in Taiwan in the future.





Translational Research: A New NTUH Center for Cross-talking Between Basic and Clinical Research



National Clinical Trial and Research Center, NTUH.

The 21st Century is the dawn of an era in which we are witnessing a much more rapid communication between basic and clinical research within medicine. Researchers and physicians these days are expected to integrate the knowledge of their domain's basic research into clinical practice in an ever more effective manner. As a prominent medical center in Taiwan and the Asia Pacific region, National Taiwan University Hospital is committed to this trend because it hopes to develop better treatments. The National Clinical Trial & Research Center was inaugurated this year to fulfill this goal. The central purpose of this new NTUH unit is to coordinate multidisciplinary research, conduct state-of-the-art clinical research, assume leadership in clinical research within the Asian region and integrate medical centers in Taiwan into one extensive network for clinical trials.

Operating under a five-year grant from the Department of Health, the research center provides abundant resources to support physician-scientists and other medical researchers, including the Clinical Trials Research Center, Translational Research Center and Center of Evidence-Based Medicine and Statistics.

The Clinical Trials Research Center is designed to advance the medical sciences and promote comprehensive care for patients. Medical researchers are encouraged to submit innovative research proposals. CTRC offers in-depth consultations on protocol development, trial funding, trial management, trial regulations, safety monitoring and research personnel training. Outpatient facilities, experienced research assistants and nurses and financial support are also provided to investigators at NTUH. In

addition to PI-initiated clinical studies, the CTRC also seeks and attracts trials from major international pharmaceutical firms. The center is currently conducting large-scale vaccine trials as well as a number of Phase I studies. It is hoped that within the next five years the CTRC will become a lighthouse for clinical studies in Asia.



Dr. Chen Pei-jeer.

Translational research can corroborate clinical observations or hypotheses with novel scientific discovery and is a powerful tool for the acceleration of medical progress. The Translational Research Center provides laboratory space, state-of-the-art equipment and facilities and experimental expertise to facilitate for medical researchers. The TRC's new pharmacogenomics lab will play an indispensable role in the study of individualized medicine.

The Center of Evidence-Based Medicine and Statistics provides assistance in the generation of randomization codes and clinical data management. Specialized personnel at CEBMS interpret and come up with statistical results and offer computer demonstrations relevant to the analysis of medical research data. They also offer regular biostatistical consultations on the NTU medical campus. This service has met with great success and has provided more than 400 consultations over the last year.

The Translational Research Center provides laboratory space, state-of-the-art equipment and facilities and experimental expertise to facilitate for medical researchers.



Advanced Technology Comes to Life and Entertainment: NTU's Latest Multimedia Technology Wins Top Honors at ACM Multimedia 2007 in Germany

NTU's Center for Information and Electronics Technologies presented its latest research achievements to the public on November 1st. The center was especially proud to showcase its automatic photo collage and soundtrack slide show technology, which won a Best Paper award at ACM Multimedia 2007. Among the other fascinating technologies introduced by the center were two amazing one-of-a-kinds: the i-m-Top tabletop dual-resolution touch screen system and a television news search and browsing system that automatically generates headlines, summaries, subject trees and tables of contents. In all, the CIET displayed 13 research achievements from across the three categories of life and entertainment, video and interaction, and news and information.

While presiding over the presentation ceremony, NTU President Lee Si-chen noted that industrial development is critical to national prosperity and that digital content is one of the stars designated in the government's Two Trillion, Twin Star industry development policy. Lee declared that, if the high-technology industry is to maintain international competitiveness, the academic community must leave its ivory tower and integrate academic research into daily life so that it can come up with research achievements that are truly helpful to industry.

Drawing the spotlight in the life and entertainment category was the Collage Slide Show, which was developed by Dr. Wu Ja-ling's research team at the College of Electrical Engineering and Computer Science's Graduate Institute of Networking and Multimedia. Wu and his team developed technology that automatically arranges photos into a slide show set to music as a solution for individuals and families that take so many photographs with their digital cameras that they don't have the time to organize them. It identifies photos from related categories and presents them in a collage slide show that changes photos according to the beat of a background soundtrack. This new combination



NTU President Lee Si-chen presides over the presentation ceremony for the university's latest research achievements in the area of information and electronics technology.

of audio and video technology managed to stand out above hundreds of other research achievements to claim the Best Paper award at ACM Multimedia 2007 at the University of Augsburg in Germany in September.

In the video and interaction category, the GINM's Dr. Hung Yi-ping and his research team introduced their i-m-Top tabletop dual-resolution touch-screen system, which is similar in concept to Microsoft's Surface touch-screen display system. This projection system turns a tabletop into a 120x80 cm display that can be operated by the movement of the user's hands, eliminating the need for a keyboard or mouse. The distinguishing feature of this NTU-developed system is that it uses two rear projectors to produce one level of low-resolution blanket coverage and one level of high-resolution projection focused on the area indicated by the user. This is the only system of its kind in the world.

At the presentation ceremony, attendees moved their hands over the display to rapidly view and browse maps of places around the globe at Google Maps. The web site's maps appeared spread out over the tabletop and the delighted attendees used their hands to direct a circular

field of high-resolution projection.

The star research presentation in the news and information category was developed by Dr. Lee Lin-shan and his researchers at the Graduate Institute of Communication Engineering of the College of Electrical Engineering and Computer Science. They created a television news search and browsing system to help television viewers who find it difficult to locate certain news items due to the proliferating number of television news channels. The system automatically identifies, analyses and comprehends the voice-overs of news anchors and then sorts all of the news sources input into the system into a complete two-dimensional subject tree based on content and generates a headline, summary and table of contents listing each news item. The user then can conveniently peruse the news he or she wishes to find by reading the detailed information generated by the system.

This system is the most fully functional multimedia voice browsing system in the world today. It also

exemplifies that Chinese-language voice technology leads voice technology in other languages. No system offering the same ensemble of capabilities has appeared for English or any other language. This NTU technology has been presented at exhibitions in over ten cities in North America, Europe and Japan, including two of the world's leading voice conferences: Interspeech and SLT.



Dr. Lee Lin-shan introduces the television news search and browsing system developed by his research team at the Graduate Institute of Communications Engineering.



NTU's Graduate Institute of Networking and Multimedia has developed the world's first hand-operated dual-resolution table-top computer display.

Gene Transfer Breakthroughs at NTU: Advanced Biotechnology Creates Fluorescent Green Transgenic Fish and Pigs that Possess Ornamental and Research Value

Fluorescent transgenic fish: Dr. Huai-jen Tsai, Professor, Institute of Molecular and Cellular Biology



Dr. Huai-jen Tsai of the NTU Institute of Molecular and Cellular Biology.

Genetic engineering and gene transfer are two important emerging biotechnologies, and the application of gene transfer in fish species is one area of this technology that has appeared in recent years. In simple terms, gene transfer refers to the introduction of one section of foreign genetic material through microinjection into the cell nucleus or cytoplasm of an embryo for the purpose of making the foreign material continue to reproduce within the embryo and express its special characteristics.

The fluorescent transgenic fish created in the laboratories of NTU's Institute of Fisheries Science emit fluorescent green light throughout their entire bodies. This result was achieved by implanting via microinjection a fluorescent green jellyfish gene into the embryos of a wild species of Japanese rice fish, or Medaka, and then, following a long period of growth, selecting the transgenic fish. This special species of fluorescent Japanese rice fish does not simply emit fluorescent green light from its exterior, but from all of its body tissues; even its eggs, embryos, larvae and juvenile offspring express the fluorescent gene throughout their structures. Moreover, due to the brightness of the fluorescence, it is unnecessary to place these transgenic fish in a controlled dark environment in order to observe the phenomenon of their glow. Their green fluorescence is clearly visible even under common white fluorescent lighting. Yet, it is blue light that really shows off the beauty and elegance of their fluorescent green bodies.

This glowing transgenic Japanese rice fish represents a major success in the combination of the two modern high technology endeavors of genetic engineering and gene transfers. It stands as evidence that this biological technology research can be utilized in the future to create ornamental fish that come in a eye-catching array of colors. New breeds of fish expressing a range of different colors are certain to pop up at aquarium stores for the pleasure of consumers. Furthermore, the physiology and hereditary attributes of these augmented transgenic fish have remained exactly the same as those of the wild species. And, since its new green fluorescence is stable and will not fade away, concerns over whether the fluorescence will wane due to the environment or growth are eliminated.

Green- fluorescent transgenic fish under dim light.



Red- fluorescent transgenic zebrafish under daylight



Bathed in their own new green light, these transgenic fish comprise a unique and novel breed. While they are of high ornamental value, they are also a new biotech product that is representative of the times. Moreover, this fish can be used as a new research species in the life sciences and medicine.

Fluorescent transgenic pigs: Dr. Wu Shinn-chih, Assistant Professor, Department of Animal Science and Technology.

Stem cells are a class of cells that have not differentiated completely and therefore maintain the capacity to differentiate into specialized cells or tissues. Developmental biology classifies them as cells of an early stage of development. The blastomeres of young embryos, inner cell masses of blastocysts, umbilical cord blood of embryos and new born infants and certain tissues, even some that have already reached the adult stage, including bone marrow, muscle, skin and fat, are all capable of dividing into stem cells with different potentials for differentiation. Swine mesenchymal stem cells can be derived from umbilical cord blood and bone marrow and its surrounding blood and possess a unique potential for cellular reproduction and differentiation.

Pigs are the most suitable model animals for human medical research besides primates. However, in the process of conducting research on porcine adult stem cells, it is often difficult to obtain evidence that new tissue was produced through the differentiation of the foreign stem cells after induced differentiation and implantation. If it were possible to insert a green fluorescent reporter gene into the chromosomes of prokaryotic pig embryo cells and carry out a transplants so that transgenic pigs expressing green fluorescence over their entire bodies were produced, it would be

possible to track display adult stem cells with the green fluorescent reporter gene through the differentiation of the body tissues of the green fluorescent pigs.



Dr. Wu Shinn-chih .

This thought in mind, researchers at the Department of Animal Science and Technology have used

the microinjection of genes from prokaryotic pig embryo cells to create three transgenic pigs that carry a foreign gene for enhanced green fluorescent protein, EGFP, from chicken β -actin promoter and cytomegalovirus enhancer. The researchers confirmed through use of a fluorescence imaging system that EGFP has been expressed externally in the skin, teeth, eyes and hooves of the pigs and that



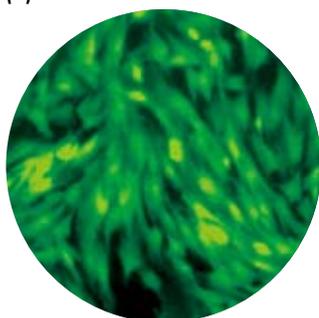
Three transgenic pigs that express the enhanced green fluorescent protein glow under blue light as seen through a yellow optical filter.

cells differentiating from bone marrow cellular division and ex-vivo cultured mesenchymal stem cells all expressed the protein stably.

This type of single mesenchymal stem cell line produced through the differentiation of

the bone marrow cells of fluorescent pigs will benefit research and development in regenerative medicine by promoting research into the regeneration of such tissues as cartilage, teeth, skin, ligaments and even nerves, especially in the area of allogenic transplants.

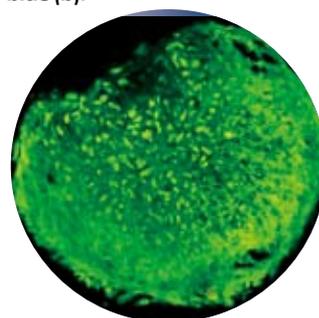
Mesenchymal stem cells differentiated from the bone marrow of fluorescent green transgenic pigs as seen through a microscope (200 X) under natural light (a) and blue light through a yellow optical filter (b).



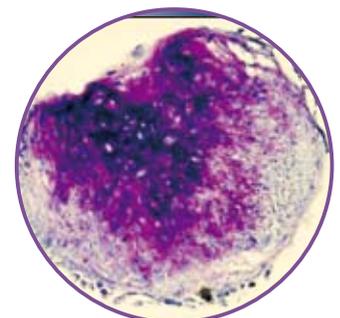
(b)



(a)



(b)



(a)

Cartilage cells induced to differentiate from the mesenchymal stem cells of the bone marrow of fluorescent green transgenic pigs, here seen through a microscope (200 X), (a) continue to express the enhanced green fluorescent protein after being dyed with toluidine blue (b).

CTLD Program Supports Mentoring of Incoming Professors

Since early in 2006, the Center for Teaching and Learning Development has organized and supported a mentorship program for incoming NTU professors called the Leading Goose Project. Based on the concept of a head goose leading its flock, the program invites outstanding senior professors to volunteer to provide guidance and suggestions to their younger colleagues in such areas as teaching, research and service. To date, the project has helped 30 experienced professors offer their advice and share their experience and knowledge with 39 new professors.

The CTLD has modeled its mentoring system on those of a number of famous universities in the United States, which have implemented comprehensive systems under which senior professors are assigned to mentor new professors within their same college. However, the CTLD's program is still in its early stages and, unlike



The early stages of Leading Goose Project .

similar systems in the United States, it currently operates by accepting applications from new professors and then inviting senior professors to act as mentors. Another variation is that the CTLD allows the new professors to take mentors from outside of their own college.

Student Counseling Center Offers Services to Help Students to a Better Life

The NTU Student Counseling Center provides a wide variety of services to help students better their academic and personal lives. The Center's individual counseling service allows students to meet with a counselor for 50 minutes each week to discuss, in a free and open atmosphere, questions or problems they might harbor concerning academic performance, career planning, interpersonal relationships, depression, anxiety, feelings of inadequacy and family conflicts. The Center also offers group counseling sessions and workshops that focus on such topics as careers, interpersonal relationships, emotion management and relaxation. These group meetings not only help students gain knowledge about themselves and

others, they also provide opportunities for socialization.

In addition to these interactive services, the Center also administers a variety of tests, including personality, interpersonal interaction, aptitude and career tests, that all can help students gain a deeper understanding of themselves. Moreover, with an increasing number of students coming from abroad to study at NTU, the Center also has English-speaking counselors who can provide overseas students with the same assistance offered to local students.

More information is available in English on the center's web site at http://homepage.ntu.edu.tw/~ntuscc1/01about_english.htm.

The NTU Student Counseling Center



The NTU Phytotron Controlled environments for global climate change research on plant growth



The Phytotron allows researchers to control precisely environmental conditions, such as temperature, humidity and light level, in order to provide the desired growing environments for their plant materials. This facility is an important tool in studying the influences of climate change on the growth and development of plants.

The NTU Phytotron operated by College of Bioresources and Agriculture was established in 1969. It is the first of its kind in Taiwan. The facilities of NTU Phytotron currently include eight temperature-controlled greenhouses, four artificial light rooms, two low-temperature dark rooms. The environmental systems of these units are controlled by computers. In addition to the plant growth area, there are plant physiology and molecular biology laboratory set up in NTU phytotron. The Phytotron provides its services to NTU professors, students and research personnel whose experiments call for controlled plant growth conditions. The center has accommodated 80 to 100 experiments annually in recent years. For more detail information about NTU Phytotron, please visit The Phytotron's web site - http://homepage.ntu.edu.tw/~phytotron/index_e.htm.

Gallery of University History Bathed in Light Under the Starry Night

Every year during NTU's anniversary celebration, the university artfully lights the facade of the Gallery of University History to accentuate its architectural beauty and welcome alumni and visitors to take advantage of its extended opening hours. Now a class-three historical site, this venerable building served as NTU's main library from 1931 until 1998 when the NTU Library was relocated to its current home. Then, in the meantime before it became home to the Gallery of University History in 2005, the building was used only by a small number of students and professors from the College of Liberal Arts and served for a short time as a theater for NTU performances.

Under the darkness of the starry night, the golden glow emanating warmly from the old building's sturdy arched doorways and windows reminds the university's former students of the long nights they spent with their heads tucked into their books while sitting in the old library's reading room.

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