

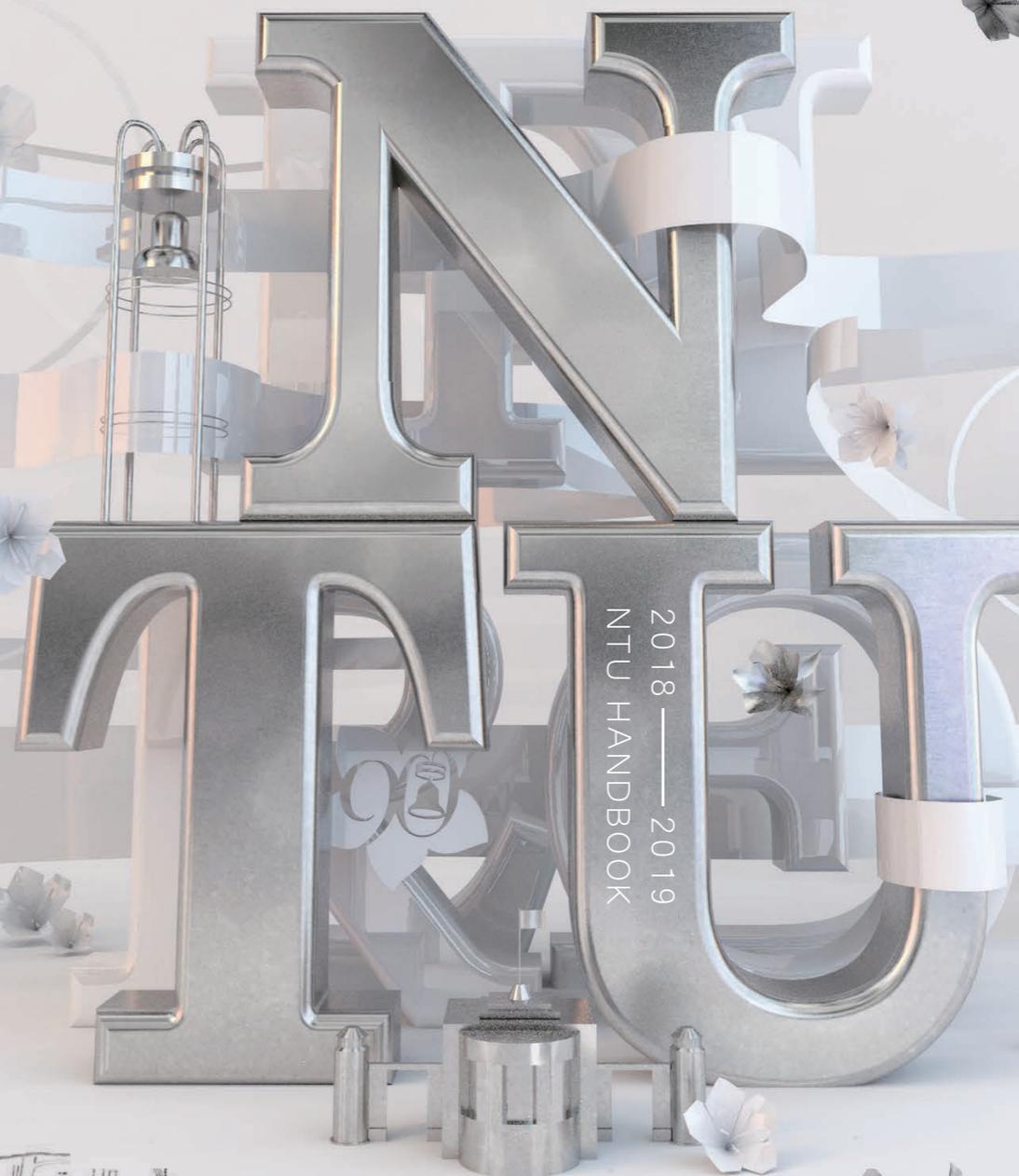
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04
90 Years in Retrospect

05
Milestones

07
Today and the Future

15
Alumni Impact and Reunions

17
Research Highlights

23
Global NTU

29
Restoration of the Daan Branch of Liugong Canal

NTU 90: Towards a Century of Excellence



90 Years in Retrospect

The year 2018 marks the 90th anniversary of the founding of NTU. Ancient Chinese considered 30 years to be a generational cycle. 90 years, therefore, amount to three cycles with three generational shifts. Over the past 90 years, NTU has been the leading comprehensive university with the most academic resources and the widest range of disciplines and domains in Taiwan. Since early on, NTU has consistently been the recipient of the most generous support from the government, and thus we gladly shoulder the highest expectations from the people of Taiwan. As a herald for change, NTU has stood at the frontline of all major reforms in fields ranging from politics, economy, education, culture, technology, to environmental protection. We have heeded the people's voices and have provided the government with constructive and unbiased counsels per our academic professionalism and social conscience. NTU faculty and students will continue striving to meet people's expectations and living up to the high standards our predecessors have set since the University's establishment in 1928.

Ancient Chinese academic creeds called for prominent scholars to serve the public, and for others to govern themselves. As competition grows fiercer on a social, national, and even global scale, NTU faculty and students should not remain complacent in Taiwanese academia. Rather than serving short-sighted, partisan interests, we must venture forth from our ivory shell and embrace change, and seek to establish NTU not only as a world-leading university, but also as a guiding beacon for all of Taiwan.

NTU ranks in the world's top 50 in over half of its research areas. This achievement, though second-to-none in Taiwan, does not stop us from pursuing excellence in featured domains and from broadening our international reach. To entice overseas students, we are keen to provide a barrier-free learning

environment for international students. In turn, we also seek to increase our students' international mobility, encouraging them to reach out to the world. To this end, we inspire NTU students to learn inclusively and innovatively from a global perspective. Concurrently, we persevere in enhancing our students' core competencies to prime them for future academia or professions and for emerging technologies and industries. Under the existing disciplinary framework, NTU promotes language training, general studies, and cross-disciplinary learning that combines both theory and application to uphold NTU's legacy of academic excellence, innovations, and reforms, as well as to nurture forward-looking leaders in the next generation.

Regrettably, limited resources in Taiwan's higher-education community have resulted in intense competition among Taiwanese universities. That being said, we are committed to partnering with like-minded universities, and move away from monopolizing Taiwanese academia to collegiate collaboration and institutional teamwork across the island. In the same vein, the competition for academic results, resources, and enrollment could mire us in the vanity of high rankings and the apathy towards social ills. Therefore, not only do we persist in offering higher education for the public and in substantiating support for underserved students, but also do we propagate in our students the altruistic concern for others and in ourselves the social responsibility for the nation. And thus NTU's academic endeavors and achievements will continue to be devoted to the betterment of Taiwan and the world.

In celebration of our 90th anniversary, all NTU faculty and students shall aim to "dedicate the University to the Spiritus Universalis" — a most notable goal set by former President Ssu-Nien Fu. Only through unabated dedication, excellence, and innovation, will we advance steadily at the forefront of international academia and ultimately honor NTU's long lasting legacy and our full public commitment.

Milestones

National Taiwan University's predecessor, Taihoku Imperial University (TIU), was founded by the Japanese government in 1928. Following the nationalist government's victory over Japan in the Second Sino-Japanese War in 1945 and Taiwan's retrocession, the ROC government took over the school, which was reestablished as National Taiwan University (NTU).

The university's roots, however, go further back to 1895, when the Japanese instituted Taiwan Hospital, the precursor to the NTU Hospital, located in Dadaocheng, Taipei.



University emblem

1895

June 18: Taiwan Hospital becomes operational.

1928

March 17: TIU is founded.

Being established on the campus that formerly belonged to Taihoku College of Agriculture and Forestry, TIU initially houses the Faculty of Literature & Politics, the Faculty of Science & Agriculture, the affiliated Technical College of Agriculture and Forestry (which is reinstated as Taichung Senior School of Agriculture and Forestry in 1943), and a library. Dr. Taira Shidehara is appointed the first president of TIU.

1936

The Faculty of Medicine and the Medical College are established.



Faculty of Medicine

1937

July

Forests in Central Taiwan's mountainous region are acquired for highland farming experiments (Highland Experimental Farm, an affiliated organization of the College of Agriculture, is established in 1961).

1938

The university's affiliated hospital is established.



TIU's affiliated hospital (now the West Site, Original Building of NTU Hospital)

1941

July

The Preparatory Division is established.

1943

March

The Faculty of Science & Agriculture is divided into two separate faculties: the Faculty of Science and the Faculty of Agriculture.

May

The Faculty of Engineering is established.

1945

November 15: Per the decree of the Executive Yuan, TIU is reestablished as National Taiwan University (NTU), with Tsung-Lo Lo as the first president.

The university, including an affiliated hospital and farm, comprises six colleges: Liberal Arts, Science, Law, Medicine, Engineering, and Agriculture. Other administrative divisions include the Offices of Academic Affairs, General Affairs, and Disciplinary Affairs (The Office of Disciplinary Affairs is renamed "the Office of Student Affairs" in 1995).

1947

January

The Provincial College of Law and Commerce (originally Taihoku College of Commerce) is annexed into NTU. The annexation includes the college campus and buildings on Xuzhou Road.



Taihoku College of Commerce

1949

January

Ssu-Nien Fu takes on the mantle of the university's fourth president. (The Fu Bell and Fu Garden are later built to commemorate him.)



President Ssu-Nien Fu in the President's office (source: Tong-Shin Lu)

May

The First Demonstrative Tree Farm is handed over to NTU by the provincial government, and renamed the Experimental Forest Office under the College of Agriculture the following year.

1963

The Center of Electronic Computing (which is renamed "Computer and Information Networking Center" in 1995) is established.

1982

November

The university emblem is unveiled at the anniversary celebration.

1986

Noted NTU alumnus, Dr. Yuan-Tseh Lee, is awarded the Nobel Prize in Chemistry.

1987

August

The College of Management is established.

1988

March

The Student Representatives Federation is renamed, the Student Association (with a president directly elected by the entire student body).

1993

May

NTU becomes the first university in Taiwan to elect its own president. Mr. Wei-Jao Chen is nominated accordingly. He takes office in June as the school's 9th president.

August

The College of Public Health is established.

1996

October

The University Press is established.

1997

March

NTU celebrates its first Azalea Festival.

August

The College of Electrical Engineering (which is renamed "the College of Electrical Engineering and Computer Science" in 2000) is established.

1999

August

The new College of Law is established. Departments formerly under the College of Law form the College of Social Sciences.

2000

May

The Chupei Campus is established.

October

The Yunlin Campus Planning Committee is established.

2002

August

The College of Agriculture is renamed the College of Bioresources and Agriculture.

2003

August

The College of Life Science is established

2007

August

The Offices of Research and Development, International Affairs, and Financial Affairs are established.

September

NTU signs a memorandum of cooperation with Yonglin Healthcare Foundation to establish a hospital specializing in cancer treatment.

November

The NTU Museums Group is established.

2008

August

The Schools of Dentistry and Veterinary Medicine are established.

2009

October

NTU ranks 95th in the "Times Higher Education World University Rankings," marking the school's first entry into the Top 100.

2013

August

The School of Pharmacy is established.

2015

January

The NTU Triangle Alliance between NTU, National Taiwan Normal University (NTNU), and National Taiwan University of Science and Technology (NTUST) is established.

2016

March

The NTU Triangle Alliance evolves into the NTU System, per the approval of the Ministry of Education. President Pan-Chyr Yang is elected as NTU System's first president.

2017

August

The Center for Continuing Education is reinstated as the School of Professional Education and Continuing Studies (SPECS).

2018

June

NTU hosts the 2018 APRU Annual Presidents' Meeting.



NTU SYSTEM

國立臺灣大學系統

Today and the Future

NTU at a Glance

11 Colleges

- College of Liberal Arts
- College of Science
- College of Social Sciences
- College of Medicine
- College of Engineering
- College of Bioresources and Agriculture
- College of Management
- College of Public Health
- College of Electrical Engineering and Computer Science
- College of Law
- College of Life Science

56 Departments

112 Graduate Institutes

18 Master's and PhD Programs

3 Professional Schools

- School of Dentistry
- School of Pharmacy
- School of Veterinary Medicine

1 School of Professional Education and Continuing Studies

50 International or University-Level Research Centers

6 Affiliated Hospitals

- NTU Hospital, Jinshan Branch, Beihu Branch, Hsinchu Branch, Chutung Branch, and Yunlin Branch

4 Libraries

- Main Library, Koo Chen-Fu Memorial Library, Medical Library, and Law Library

Housing a collection of **4** million books,

40,000 journals,

and **1** million items of non-book materials

NTU Main Campus is located in Downtown Taipei City, and its 7 campuses occupy



1,650 active agreements with universities in **64** countries



5,228 international students from **66** countries



NTU has over **600** partner universities worldwide



Professors	1,120
Associate Professors	476
Assistant Professors	390
Lecturers	23
Total	2,009



Full-time staff (including rare technicians)	592
Contract employees	947
Total	1,539



Male	1,415
Female	594
Total	2,009



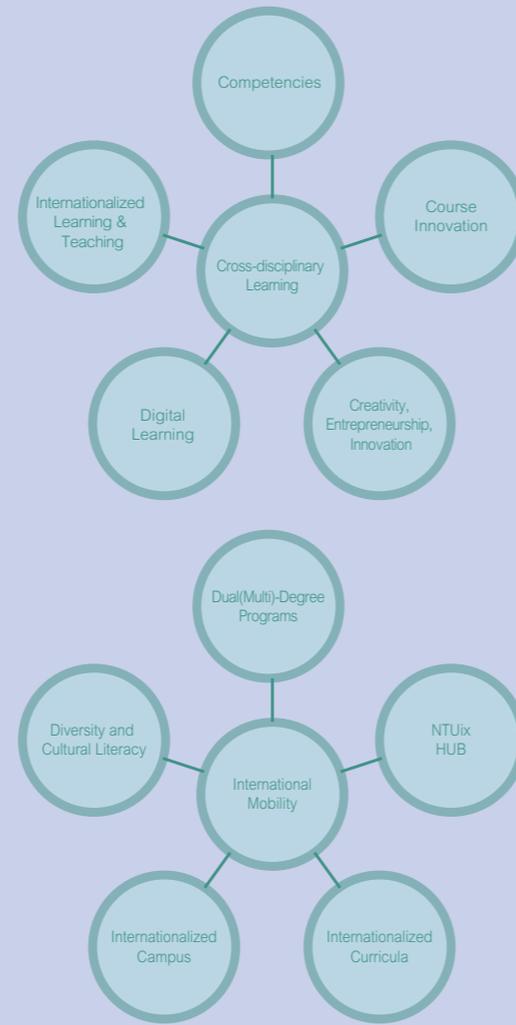
Professors	552
Associate Professors	235
Assistant Professors	272
Lecturers	384
Specialists and Teachers	130
Research Fellows	149
Clinical Teachers	280
Total	2,002



PhDs (Male)	2,408
PhDs (Female)	1,060
Masters (Male)	7,107
Masters (Female)	4,619
Bachelors (Male)	9,469
Bachelors (Female)	7,166
Total	31,829

Reshaping Learning Models to Nurture Multidisciplinary Talents

The rapid changes currently taking place across the globe, and the emergence of new academic pursuits have opened a wide window of employment opportunities for the rising generation, offering them a promising future. NTU provides an international learning and teaching environment that is liberal, pluralistic, and adaptable for its faculty members and students in hopes of enabling a wide array of cross-disciplinary programs and curricular reforms. In so doing, we seek to edify students' international mobility, encourage analytical/critical thinking, reasoning, and integrated competencies, inspiring them to apply abstract ideas into real practice, and distilling in them the soft skills for prospective career advancements and research capabilities.



Learning without Borders: Integrating and Sharing Resources

Promotion of Online Learning and Resource Sharing

In a move to fulfill our vision of innovative teaching and education reforms, NTU has made continuous efforts in the development of digital platforms and resources to support both teaching and learning. As for on-campus courses, we have developed an online course management system CEIBA (Collaborative Enhanced Instruction by Synchronous Learning) to help teachers effectively manage teaching materials and interact with students.

Moreover, to enhance the impact and effectiveness of our teaching and learning resources, NTU has actively shared high-quality online learning resources with the public in Taiwan and around the world. Some of the digital learning resources we have been developing include NTU Speech, NTU OpenCourseWare (OCW), and NTU MOOCs on Coursera—where learners worldwide can freely access a variety of speeches, courses, and teaching/learning materials.

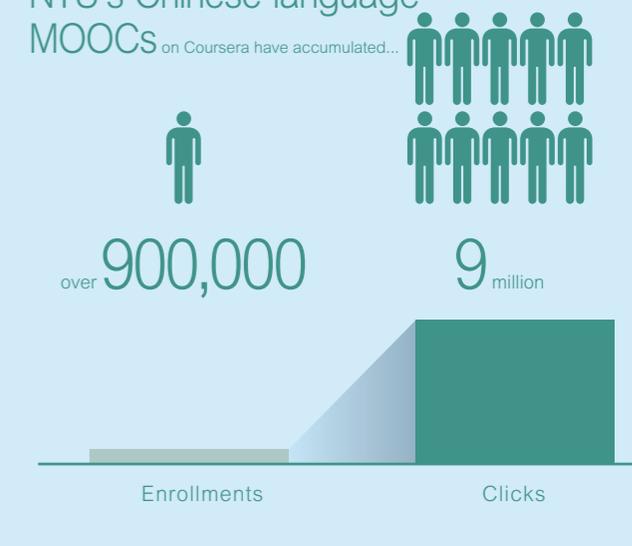
University without Borders in Taiwan

In 2010, NTU and 12 of our partner universities joined hands to establish the Summer College, offering general education courses during summer. In 2014, NTU expanded the Summer College, partnering with 73 universities across Taiwan to offer a greater variety of courses. Since initiating the project, the participating institutes have offered over 356 general education courses for college students nationwide and attracted more than 14,000 enrollments.

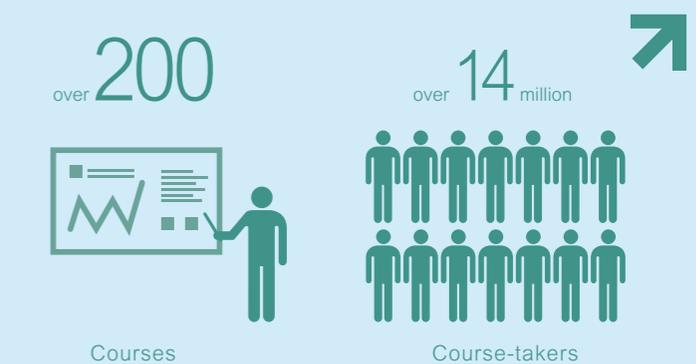
In the future, NTU will stay committed to integrating education resources from universities across Taiwan, expediting their accessibility and distribution through digitization, and providing convenient and comprehensive online learning platforms for teachers and students in Taiwan and around the world.



NTU's Chinese-language MOOCs on Coursera have accumulated...

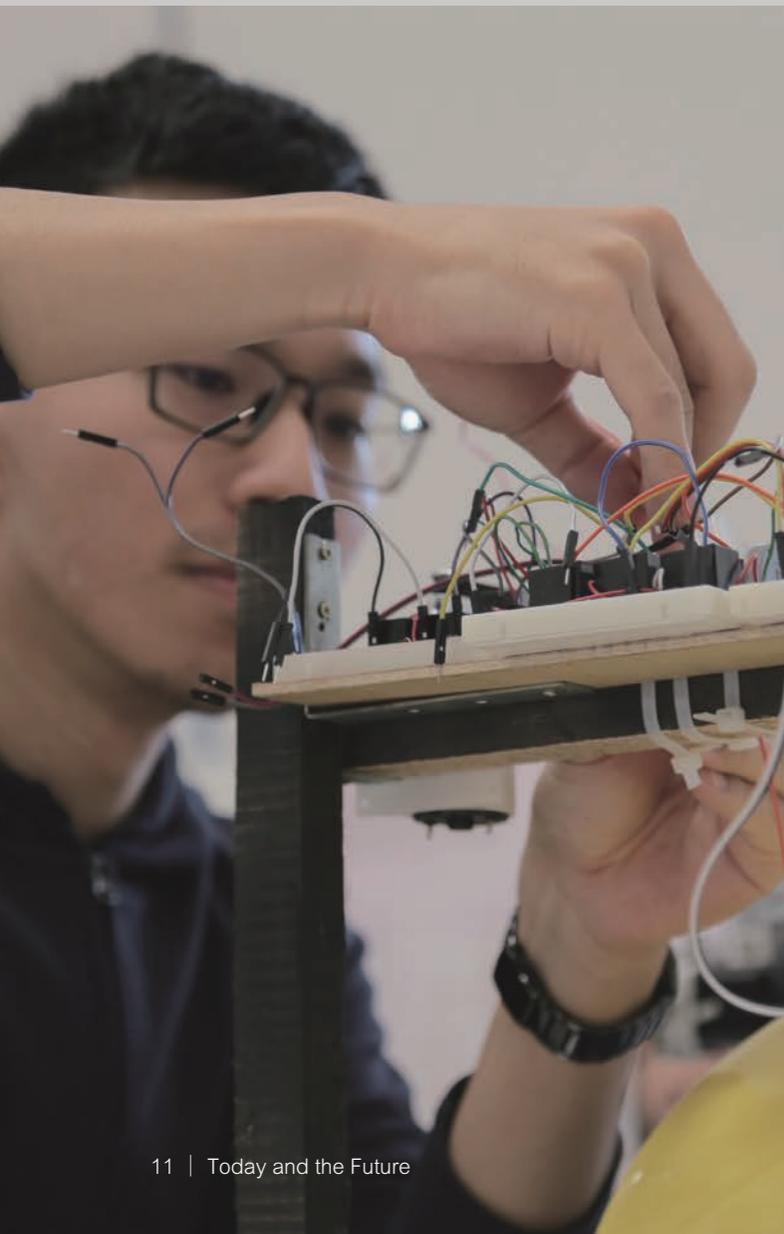


NTU OpenCourseWare (OCW)



Creativity and Entrepreneurship: Cross-Disciplinary Startups on the Rise

Entrepreneurship programs and services are trending throughout the world and gaining momentum still. The startup community in Taiwan, along with the government and private accelerators, have helped shape a culture and climate constructive for entrepreneurship practice.

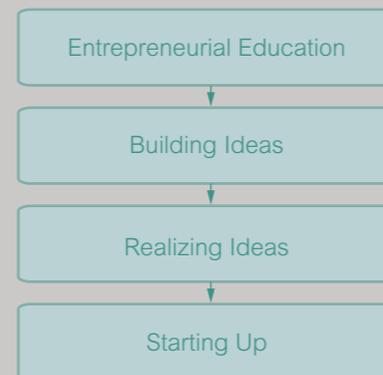


As an active participant, NTU Taidah Entrepreneurship Center (TEC) has incubated over 130 startups. In December 2017, "Demo Day" was held to allow the startup teams to advertise and showcase what they have achieved, and it marked the official announcement of NTU Accelerator, which now also welcomes the participation of non-NTU affiliated teams. NTU Accelerator features renowned businesses across Taiwan to serve as mentors, building long-term strategic partnerships, identifying valid business models, and developing startups to facilitate national industry upgrades.

NTU TEC used "The Next Rising Star" as the theme to present eight startup teams participating since last summer. The teams developed various solutions ranging from high-tech AI edge computing, IoT smart appliances, chatbots for digital marketing, cultural and creative products to the establishment of nongovernment organizations.

NTU TEC is also dedicated to developing a startup accelerator and incubator, as well as establishing a comprehensive and sound entrepreneurial ecology in the campus community. After launching NTU Accelerator in August 2017, we initiated the first NTU TEC x Vertically-Focused Accelerator project in October 2018, providing startups with channels of collaboration with businesses while helping them acquire resources from industry to speed up product-market validation.

Building a Community of Creativity, Innovation, and Entrepreneurship



Turning a Corner: Seeing a New World

Education changes lives. Thus students from underserved families should not be denied the opportunity for a better education. NTU is keen to support students in need. In addition to offering financial aid, we have diversified our admission services, provided learning and career counseling, and installed a comprehensive support system to build up students academically, mentally, and financially. By doing so, we are empowering students to progressively learn, grow, and head toward a brighter future. In 2015, NTU initiated the Hope Admission Project for students from disadvantaged families or backgrounds (including those from low/mid-income families, in hardship, or from new immigrant families), fostered a friendly learning environment as well as a venue for social mobility for students who are socially or financially underserved.

Sustainable Scholarship Fund

NTU has raised a seed capital of

NT\$ **106** million to establish a sustainable scholarship fund for socioeconomically disadvantaged students.



2015-2017 Social Services


219
Service Teams


Reaching out to
19,547 People

Love Never Fails: Student Engagement in Social Services

Besides academic achievements, NTU students are also devoted to outreach services for those in need: they extend care to people of all ages throughout the world, including disadvantaged or ailing children, adolescents, communities, and live-alone elders. NTU offers service courses and opportunities for students to team up and apply what they have learned in the classroom. For instance, students in the Colleges of Medicine and Public Health have formed four medical teams every winter and summer break to conduct free medical services, family visits, environmental health surveys, and health education sessions in remote areas for more than a decade.

By now, our students have sent as many as 200 social service teams to remote villages in Taiwan, off-shore islands, and even places as far as Yunnan in China, Thailand, Myanmar, Malaysia, and Nepal. To support and encourage our students' engagement in social services, we launched the Social Devotion Special Award and the Altruistic Award in 2013, to salute and to promote our students' magnanimous concern and care for others. Over the years, a total of 200 students have been honored accordingly for their contributions and dedication.



Interview with Calls over Ridges—Winner of 2017 Social Devotion Special Award

“Being part of a University community means that you are able to encounter fresh novelties every single day, from Orientation to Commencement, and to discover your real passion in life.”

Calls over Ridges is an international nongovernment organization founded by NTU economics students, Tzu-Chun Lin and Emily Tsai, two years ago. Until now, the organization has helped more than 300 Nepalese kids who were struck by the 2015 earthquake to continue their schooling. Calls over Ridges also built two robust libraries housing 800 books with a pragmatic lending system. The program began with Lin’s stint as a short-term volunteer in Nepal seven years ago.

From Short-Term Volunteering to Calls over Ridges

“Short-term volunteers should not be undervalued, because they are actually the integral parts of a larger organization,” said Tzu-Chun Lin, asserting that short-term volunteers are essential for facilitating projects and services.

Lin’s experience with short-term international volunteering inspired him to consider a career in something much more long-term. During his second year at NTU, Lin met two classmates, Emily Tsai and Andy Fang, who had served as short-term international volunteers as well. All three shared a similar opinion: the

rapport between short-term volunteers and local residents must last longer to make real changes, such as helping the children leave the poverty cycle, or attain a higher socioeconomic status. Therefore, Lin, Tsai, and Fang decided to create an outreach program to provide long-term education support for the Nepalese children in need. This initiative marked the inception of Calls over Ridges, which has since grown and thrived with sustained effort of the Three Musketeers.

Donating a Cup of Beverage a Month for Nepalese Earthquake Relief

Nepal was devastated by a major earthquake in 2015, which took nearly 8,000 lives. Calls over Ridges sprang to act and initiated the first crowdfunding campaign, urging college students in Taiwan to “donate the money for a cup of beverage” (approx. NT\$60) per month to help Nepal weather the aftermath of the quake. The campaign received donations from as many as 350 college students across Taiwan, gathering a fair sum of money which was then donated in full to Nepal for disaster relief.

Establishing a Long-Term Learning Ecosystem

What is the next goal of Calls over Ridges after the success of the first campaign?

The members consider education as the only means to fundamentally improve the children’s life. Calls over Ridges designed a “Learning Ecosystem” that involves a four-pronged approach: education funds, learning resources, parental participation, and intrinsic motivation. The members understand that it takes more

than financial support to make real impact. Children must recognize why education is necessary, and parents must engage themselves as well to motivate their children to learn and cherish learning resources. The learning ecosystem proved to be remarkably effective and well-received in Nepal. By establishing this system, Calls over Ridges has successfully reduced the dropout rate of nearly 1,000 students in three local schools to below 2%, and maintained the low dropout rate for more than six months.

Tzu-Chun Lin shares his idea about seeding the ideas of Calls over Ridges in more places around the world, including other underdeveloped countries and remote areas in Taiwan. In early December, a long-term funding platform will be established for Calls over Ridges to ensure a lasting source of funds for local education in Nepal.

NTU Makes Impacts Felt

Tzu-Chun Lin recollected not having specific goals for his future before reaching the second year of undergraduate study at NTU. After becoming a student of economics at NTU, Lin continued to explore new ventures, and the training at the economics department has left substantial impacts on him. Studying economic theories has improved Lin’s reasoning, comprehension,

and communication skills. One year after the establishment of Calls over Ridges, Lin collaborated with the NTU Department of Economics and professors of the NCCU Graduate Institute of Development Studies to analyze Nepalese children’s daily living conditions and their performance at school. “Performing data analysis provides a great opportunity for us to verify whether our services are truly beneficial for the locals; it also helps me recognize the practical value of what I have learned at NTU,” said Lin. The enthusiastic participation of Lin’s classmates of the Department of Economics has also increased the visibility of this international nongovernment organization.

“When you find yourself sticking to a cause despite numerous failures, it means you have found your calling.”

Lin has never considered choosing a desk job in the future; instead, he favors the outdoors and traveling around the world. After establishing Calls over Ridges, Lin has finally found his passion and goal.

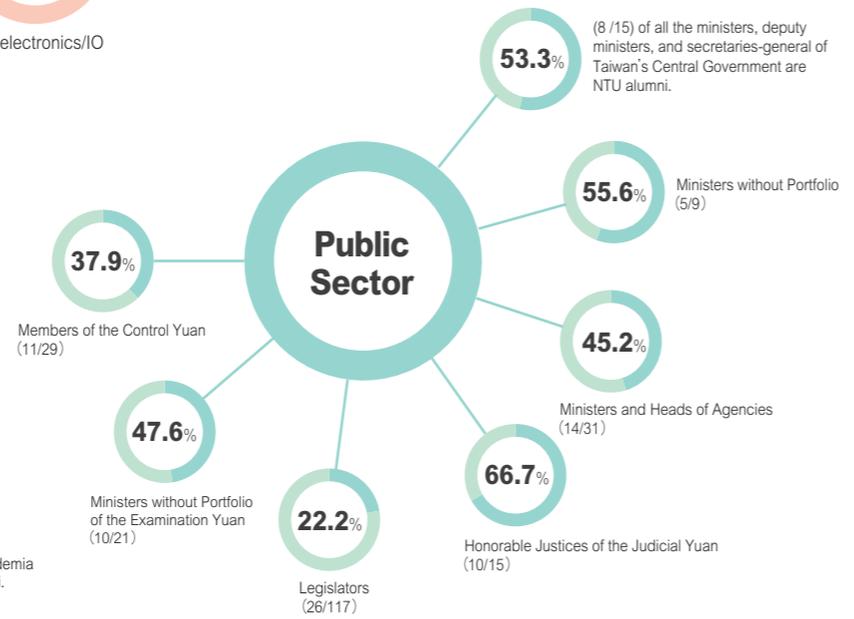
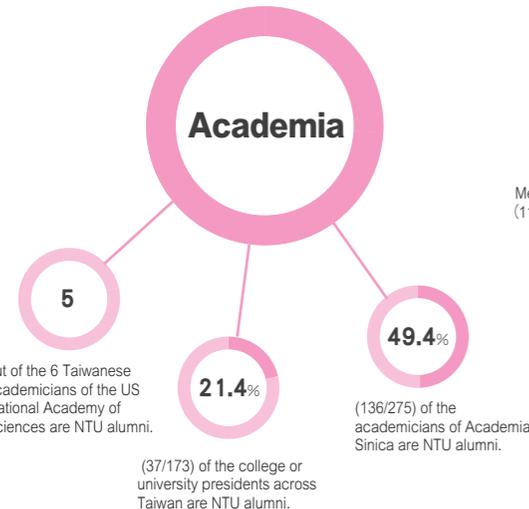
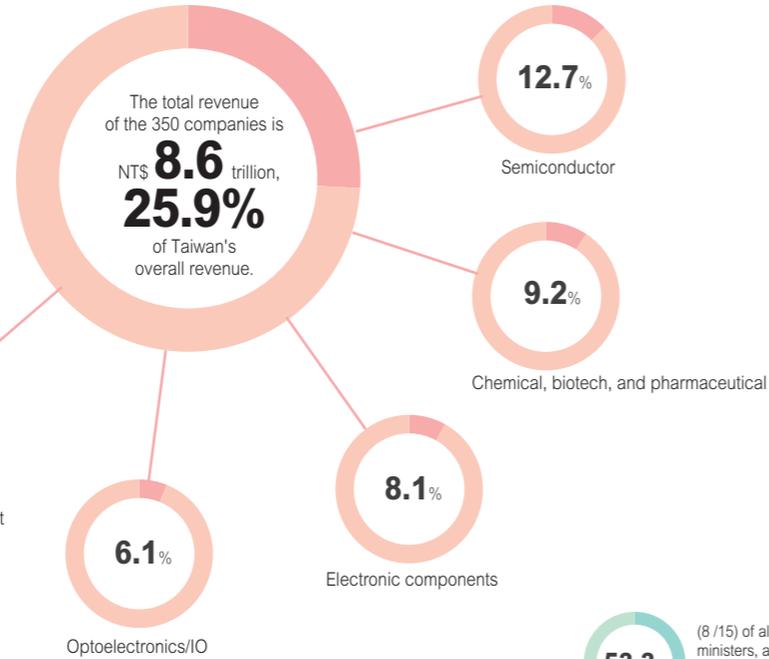
Note: Excerpted from No. 103, NTU Career E-Newsletter, 2017/10/27 (by Yi-Shin Chen).

• Founders of Calls over Ridges: Tzu-Chun Ling (left) and Emily Tsai (right). Photo courtesy of Andy Fang, Calls over Ridges.

Alumni Impact

The Top 5 choices of profession for NTU alumni are in:

18% (350/1,947) of all the listed, over-the-counter, and emerging stock companies in Taiwan are headed or managed by NTU alumni.



Something to Look Forward To: The Alumni Reunions

What is it like to feel the joy of reuniting with your friends from school after leaving your alma mater for decades? If you have been thinking about your classmates for all these years, then don't miss these gatherings where you can reconnect with your old friends! Over a thousand alumni sign up for reunions every year, some traveling as far as thousands of miles just to re-experience their former life at NTU. These reunions always rekindle great memories, and are filled with laughter.

The greatest thing about the reunions is that they engage and reconnect alumni. The first priority of planning such events is to build a network of contacts and, by reaching out to the liaison officer of every department, the alumni can reconnect with long-lost friends. Furthermore, the department liaison officers can assist with the convening of preparatory meetings, where the contacts and the Alumni Center brainstorm together on activity-planning, such as department revisits, tours, and group photos. The triumphant success of these events reflects the endless creativity and inexhaustible passion of the NTU alumni community.

At present, NTU has an alumni community of about 300,000. To ensure better and customized services, the Alumni Center began co-organizing the 30-year reunion with alumni in 2007, and the 40-year reunion in 2011. In 2015, NTU launched the 50-year reunion, inviting alumni who graduated 50 years ago to return to their alma mater for a grand homecoming. Groups who performed at the 30- and 40-year reunions put on shows for the 50-year reunion; it is in these gatherings that the spirit of NTU is rechanneled, the heritage is passed on, and a sense of belonging is consolidated.

For the alumni, the goal of the reunions is to "seek out former classmates for a lifetime of enduring friendship." The process of co-organizing the reunion strengthens the bond between present students, the alumni community, and NTU. In other words, the gathering lasts beyond just a single day: it strengthens comradeship on our mutual journeys of life.

Top Research (2018)



Growth Rate by Decade (2007-2017)



Research Highlights

NTU is listed 72nd in the QS World University Rankings, released on June 6, 2018, becoming the only university in Taiwan to rank among the world's top 100.

The competitive landscape of major universities in Asia has shifted from a focus on overall advancement, to developing specific areas of strength. NTU's strengths have been widely recognized in the QS World University Rankings by Subject, released on February 28, 2018. NTU is ranked in the world's top 50 in four of the five major subject areas. They are: Arts and Humanities, Engineering and Technology, Natural Sciences, and Social Sciences and Management.

NTU is nominated as an elite university in 36 of the 46 subjects surveyed, with 19 subjects in the top 50, and 33 subjects in the top 100. The two rankings indicate that NTU is advancing rapidly in the international academic community.

However, a university must master key instrumentations and their relevant analytical technologies to increase its international influence and assert leadership in related research areas or topics.

Operation Network of Core Microscopy Facilities

NTU is committed to building core facilities with advanced expert systems to offer high-quality measurements and to provide state-of-the-art instrument services. Expert systems are commonly established in renowned universities and research institutes worldwide to support technical experts to achieve academic excellence and breakthroughs. This Operation Network of Core Microscopy Facilities supported by expert systems will be the first that realizes such an operating

concept in Taiwan. By networking resources on and off campus and building effective platforms for research and industry-academia collaboration, NTU will continue striving to elevate its international academic reputation.

For the pilot stage of the network, the Office of Research and Development identifies three sophisticated and high-demand technologies: mass spectrometry, electron microscopy, and optical microscopy. Instruments that are similar yet with special attachments and functions are networked and jointly operated. With the support of expert systems, students will learn essential knowledge in sample treatment, and the highly-demanded machines will be efficiently scheduled and fully utilized with a raised rate of high-quality, successful results by coordinating samples according to their instrument compatibility. Most importantly, while less over-occupied, more technically challenging and potentially high-profile questions can be preferenced via the expert system.

International Integration and Talent Mobility

NTU is a member of an array of academic associations, including the Association of Pacific Rim Universities (APRU), the Association of Southeast Asian Institutions of Higher Learning (ASAIHL), the Association of East Asian Research Universities (AEARU), the Asia-Oceania Top University League on Engineering (AOTULE), and the M8 Alliance.

As a dedicated member of these esteemed associations, NTU has actively sought to build new partnerships and facilitate international talent integration through multinational research collaborations. In addition, we blend education and research through team-based vertically integrated projects (VIPs) to enhance the research quality of faculty-student teams, boost the capacity of basic research and industry-academia cooperation, facilitate the international mobility of higher-education talents, and open up new horizons for research and development programs.

—Arts and Culture—

Flood Control and the Xia Dynasty

Prof. David J. Cohen from the Department of Anthropology is an archeologist of ancient China, whose research interests encompass the transition from the Paleolithic to the Neolithic Age, the origin of agriculture, early pottery, and the Bronze Age. Prof. Cohen published a study, "Outburst Flood at 1920 BCE Supports Historicity of China's Great Flood and the Xia Dynasty," on Science, providing overwhelming evidence for the Great Flood in China around 1920 BCE and the establishment of the Xia dynasty.

Science 353(6299): 579-582, 2016.



—Arts and Culture, Engineering, and Technology—

Touring the Dunhuang Caves Online

The Dunhuang Caves are arguably the world's most significant treasure trove of Chinese Buddhist culture, art, and relics. With the assistances of virtual reality and digital restoration techniques, the team built an "Interactive Multimedia Cave Touring System" that allows users to explore damaged murals and figurines in the caves, and experience their former glories through vivid digital restorations.

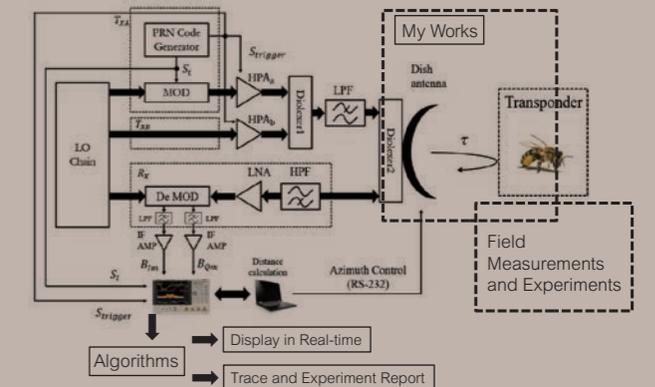
The team also developed "Tai-Chi Master," an augmented-reality head-set system, to help learners practice Tai Chi. Through the device, users get to see virtual coaches, who would help them overcome challenges experienced during practice and further enhance their health and well-being.



—Life Science—

The Case of the Vanishing Bees

The mystery of the vanishing bees has puzzled apiarists and scientists in recent years. NTU's team of biology and engineering specialists launched an investigation into colony collapse disorder (CCD), and determined that bee mortality is attributable to pesticides abuse. The study was greatly valued by the international research community and widely accepted by the European Union. The team's findings were featured on Discovery Channel.

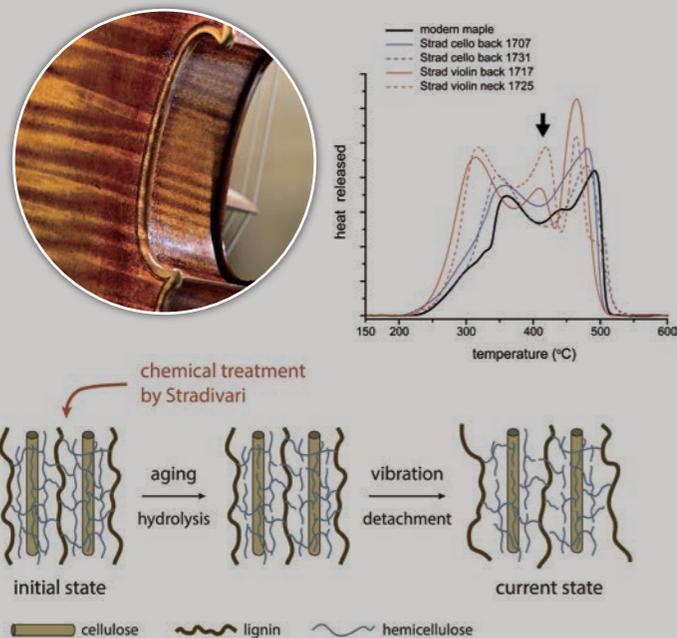


The Secret of the Stradivarius Violins

The extraordinary acoustic qualities of the Stradivarius violins are considered one of the greatest mysteries in the West. According to Associate Prof. Hwan-Ching Dai from the Department of Chemistry, one of the key reasons for the success of a Stradivarius lies in the violin's idiosyncratic imitation of the female singing pitch.

Moreover, the material of the Stradivarius likely yields the great secret to the instrument's brilliant timbre. In contrast to modern maple wood, the mineral processing, wood weathering and decomposition, and long-term vibration have led to significant differences in the material components and properties of the maple wood used on Stradivarius violins.

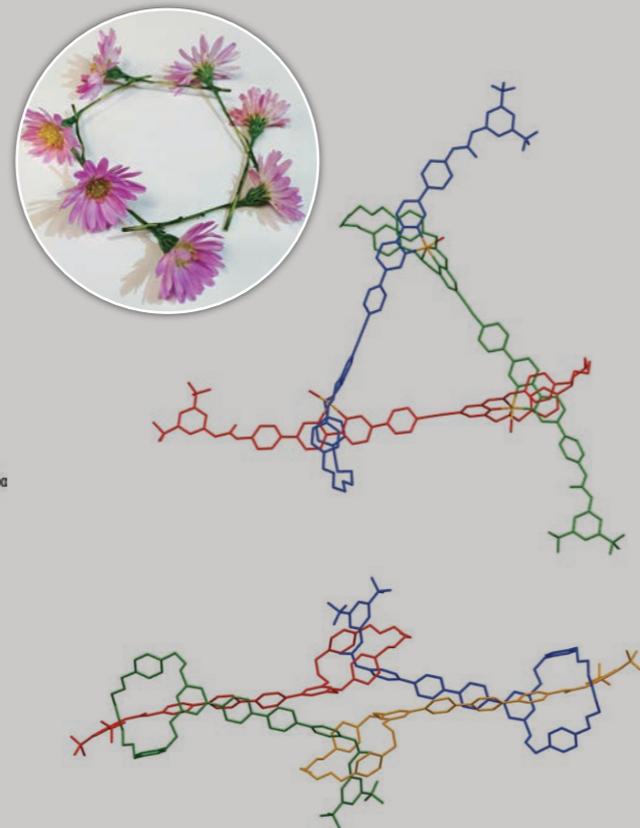
Proc Natl Acad Sci USA 114(1): 27-32, 2017; *Proc Natl Acad Sci USA*, 2018.



Major Breakthroughs in Artificial Molecular Muscles

High-order cyclic molecular daisy chains (DCs) with a rigid structure have the potential to become multidimensional artificial molecular muscles that contract and stretch not only one-dimensionally, but also in two or three dimensions. They could even develop into smart materials capable of multidimensional motions. Prof. Sheng-Hsien Chiu from the Department of Chemistry and his team introduced rigidity to the structural design of DC monomers, exploited metal coordination geometries to control the torsion with aromatic rings, to inhibit the formation of cyclic DC dimers and trimers, thus successfully invented the world's first artificial molecular muscle tetramers.

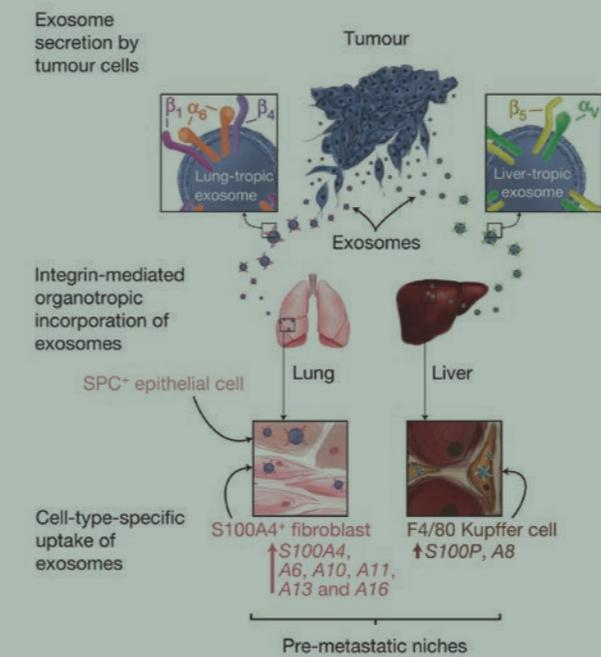
Nature Chem 9(2): 128-134, 2017.



Metastasis Predictable for Taking Precautionary Measures

Prof. Tang-Long Shen with the Department of Plant Pathology and Microbiology participated in an international research team, and found that nanoscale tumor-derived exosomes are responsible for organotropic metastasis. Prior to the dissemination, cancer cells release organotropic exosomes, attributable to a specific integrin, to establish pre-metastatic niches in distant organ(s). Detecting and identifying the integrin and pre-metastatic niches can help predict which patients will develop metastasis as well as determine the specific organ site of metastasis. The study sheds new light on preventive therapies for metastatic disease in patients with cancer at an early stage.

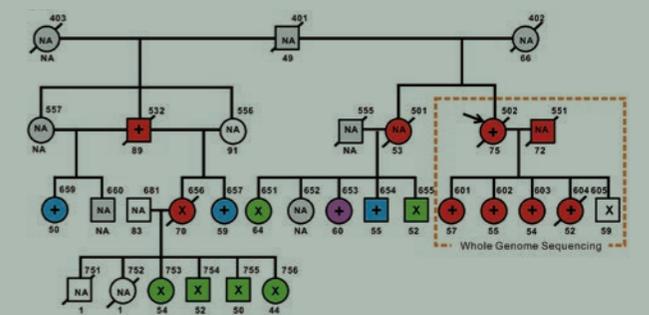
Nature 527(7578): 329-35, 2015.



Genome Mutation and Adenocarcinoma of the Lung in Chinese Populations

An NTU research team performed rapid genome sequencing to identify the correlation between adenocarcinoma of the lung and YAP1 mutation. Since carriers have a 5.9 times greater risk of adenocarcinoma of the lung when compared with non-carriers, the presence of the YAP1 mutant-allele can therefore serve as a reference for precautionary measures.

J Clin Oncol 33(20): 2303-U128, 2015.



Odds Ratio: 5.91
(Chen et al., *J Clin Oncol*, 2015)



Global NTU



NTU at present has over 600 partner universities, and in a move to strengthen the alliance with specific higher-education institutions, we have further established strategic partnership with six internationally-renowned universities: the University of Tokyo, Kyoto University, Peking University, the University of Sydney, the University of Hamburg, and the University of Illinois at Urbana-Champaign. The strategic partnership aims to effectuate bilateral resource investments, and facilitate international education and research collaborations on key global issues surrounding aging population (with Peking University), environmental sustainability (Peking University), sustainable development (University of Hamburg), and urban challenges (the University of Illinois at Urbana-Champaign).

As of now, the partnership has inspired 11 campus-wide multidisciplinary conferences, with over 1,100 participants accumulatively from NTU and our partner universities, who have formed more than 80 multinational research teams supporting over 400 faculty members and students to conduct offsite research and exchanges.

2018 APRU Annual Presidents' Meeting at NTU

The Association of Pacific Rim Universities (APRU) is a consortium of leading research universities around the Pacific Rim. One of its highlights every year — the Annual Presidents' Meeting (APM), a high-profile international education summit — was hosted by NTU in 2018. The meeting was attended by 111 prominent leaders and administrators in the higher-learning community, including 27 presidents, 40 executive vice presidents and vice presidents for international affairs, from 39 universities based in 14 countries. They gathered in Taipei during June 24-26 to discuss global challenges posed by the ever-shifting information landscape.

The meeting of 2018 was themed, "Our Digital Future in a Divided World." The three-day presidents' meeting focused on new challenges confronting higher education in the rapidly-evolving digital era. "We are delighted that our APM is a platform where overviews of

critical developments are provided and the urgent questions framed," said APRU Secretary General Christopher Tremewan. "The APM aims to ensure that the benefits of automation, big data, and information and communications technology are shared among all in society and that powerful new technologies are used to solve global challenges such as climate change, human health, and sustaining the ecosystem," he added.

As the 22nd APRU APM coincided with NTU's 90th anniversary, the participants all expressed their warm wishes and congratulations to NTU for reaching this milestone. NTU has been a dedicated member since APRU's establishment in 1997, having actively participated in various APRU meetings and organized multiple international conferences and workshops. NTU pledges to persevere in being a dedicated member of APRU to build more global connections, address global issues head-on, and showcase Taiwan's research capacities as an agent for change in the journey toward a brighter future.





2018 University Administrators Workshop at NTU

The 13th University Administrators Workshop (UAW) was held at the historic Administration Building on NTU's main campus. The workshop drew more than a hundred international affairs administrators from 23 universities across 12 countries. The participating universities included: Kyoto University, the Tokyo Institute of Technology, Chulalongkorn University, the Hong Kong University of Science and Technology, the University of Hong Kong, the University of California at Davis, the University of Sydney, the University of Bordeaux, Korea University, the National University of Malaysia, the Monterrey Institute of Technology and Higher Education, and National Taiwan Normal University.

The theme of this year, "Fostering Sustainable Talent Systems for University Administrators Responsible for International/Global Activities and Strategies," was divided into three sub-themes: employment and promotion systems, knowledge management, and on-job competency. The workshop focused on a variety of topics, including how to retain international affairs personnel, increase administrative efficiency through big data, and improve the personnel's cross-cultural communication and teamwork skills. NTU's Vice President for International Affairs, Prof. Luisa Shu-Ying Chang, opened the workshop with welcoming remarks, which were followed by a series of engaging and thought-provoking activities, including parallel discussions, a poster session, and stimulating reflections and dialogs, where participants exchanged their views and experiences on these topics.

Launched by NTU's strategic partner, Kyoto University, the UAW has become an annual event for 13 years and

1,000 faculty members have offered courses, delivered lectures/speeches, and presented papers at leading universities abroad.



1,300 students have actively engaged in international academic exchanges, including competitions and conferences.

Study Abroad Programs

NTU offers over 600 student exchange programs with partner universities based in 46 countries.



is still going strong. It has met with great successes for providing a conduit for in-depth and extensive discussions on the internationalization process in higher education, and corresponding policy agendas. Kyoto University urges all of its strategic partners, including NTU, to continue to collaborate on this workshop and fulfill the common goal of incubating future talent in order to sustain the prosperity of the higher-education community.



2018 EDGE-NEXT: Incubating Aspiring Entrepreneurs

NTU and the University of Tsukuba joined hands to host the first “EDGE-NEXT: Exploration and Development of Global Entrepreneurship for NEXT Generation” from March 1-7, with a view to mentoring entrepreneurial aspirants.

Sponsored by Japan’s Ministry of Education, Culture, Sports, Science and Technology (MEXT), the program aims to instill the spirit of global entrepreneurship in the next generation, cultivate graduate students and college visionaries with proficient knowledge, develop their capabilities to marry their research efforts organically with innovative business models, and ultimately rewrite the industry structure of the future.

Last September, the University of Tsukuba started a series of on-campus candidate screenings for the EDGE-NEXT program. In January, three teams and three accompanying members, totaling 11 in number, were chosen to attend a short-term study program at NTU. The study program was co-organized by NTU’s Office of International Affairs (OIA) and Creativity and Entrepreneurship Program (NTUCEP), with the OIA planning the event and NTUCEP designing the curriculum and scouting out prominent presenters.

The troupe of 11 from the University of Tsukuba arrived

in Taiwan on March 1 and received a warm reception from the OIA. A campus tour and reception were held on the following day. NTUCEP Director Bing-Yu Chen rolled out the red carpet to welcome them. In the courses that followed, students from NTU, the National Taiwan University of Science and Technology, and the University of Tsukuba teamed up to brainstorm and learn from one another.

Moreover, three noted entrepreneurs were invited to share their startup experiences. They included: Michel Chu, Co-Founder of GigaMedia Limited; Gary Wang, Co-Founder and Chairman of Pergolas Medical Technology; and Vincent Wang, Chairman of Sunsino Venture Group. Their rags-to-riches tales were most inspiring and motivating to all the listeners.

On March 6, the students from Tsukuba and NTUCEP shared their entrepreneurial visions in the “Final Pitch,” as professors and experts moderated the sessions and offered constructive criticisms on the participants’ presentations. The Tsukuba participants expressed their heartfelt appreciation to NTU during the farewell party in the evening of March 6, praising NTU for organizing a productive, creative study program.

Notably, this EDGE-NEXT event broadened the two universities’ collaborative horizons to include innovation and entrepreneurship. It offered NTU students an opportunity to network with entrepreneurial aspirants from other countries and infused new energy into NTU’s short-term international programs.



NTU Plus Academy: Year-Round Short-Term Programs

NTU Plus Academy offers a series of short-term programs for international students on various subjects, including performing arts, Chinese and sinology, engineering, natural science, research experiments and practicums, and social sciences. Moreover, outdoor activities are arranged for students to experience Taiwan’s vibrant folk customs, colorful landscapes, and the country’s modern and traditional cultures. Understandably, the students are swept away by the warmth and hospitality of Taiwanese people.

Students completing the short-term programs will receive official course credits, a transcript, and a certificate of completion. Currently, more than 20 programs are available every year, attracting as many as 2,200 students in total. We recruit student advisors

from local student community to help with tour-planning and reach out to international students. Many international students who participated in NTU Plus Academy have decided to stay in Taiwan for a student exchange program. Some even become degree students at NTU, and eventually set down their roots to become part of Taiwan’s glocal community.

To strengthen international cooperation and the quality of academic exchanges, NTU has become an active and dedicated member of several renowned global higher education associations, including the Association of International Education Administrators (AIEA), the Association of International Educators (NAFSA), and the Asia-Pacific Association for International Education (APAIE). As members of these esteemed organizations, we have presented plenary sessions, unveiled NTU’s strategies and reforms for internationalization, and thus effectively applied our local perspectives to a shared global vision.



Liugong Canal's Role in Defining NTU's Campus Space and History

The restoration of the Liugong Canal is not only a celebration of a renewed waterscape that beautifies the environment, but also an integration of the architectural past of the NTU Campus. The campus used to be patches of verdant farmlands irrigated by the Daan Branch of the Liugong Canal a century ago. The Taihoku College of Agriculture and Forestry was established in this area prior to Taihoku Imperial University, the predecessor of NTU. Although the original canal is long gone, the vestiges of its former glory are still visible throughout the campus.



Instructor and students of horticulture by the canal in the NTU Farm in June 1939 (Photo courtesy of Shu-Rong Chuang and the Gallery of NTU History).



Canal valve on NTU Campus in 1949 (Photo courtesy of Tong-Shin Lu and Gallery of NTU History).

- 1740 Construction** Hsi-Liu Kuo excavates an irrigation canal on the Taipei plain, which is later named the Liugong Canal.
- 1950 Disuse** The original Daan Branch north of the Zhoushan Road disappears.
- 1984 Disuse** The Liugong Canal ceases to provide irrigation water. Just about the entire Daan Branch diversion on campus goes underground.
- 2001 Restoration Begins** NTU begins the Liugong Canal Restoration Project with the support of the Liugong Irrigation Association.
- 2003 1st Phase** Completion of the 1st phase of the Liugong Canal Restoration Project (including the Liugongjun Pool).
- 2015 2nd Phase** Restoration of part of the original canal route and canal landscaping on Palm Avenue begins; water is channeled from Xindian River with the consent of the Taipei Water Department.
- 2017 Restoration Completed** Reconstructions of the original route of the Daan Branch (Drunken Moon Lake segment) and improvements on the Daan Branch diversion (Hydrotech Research Institute segment) are completed.

Restoration of the Drunken Moon Lake Segment

NTU began a lengthy restoration project for the original Daan Branch on campus in 2015. The restoration team had conducted numerous field surveys and discussions about the design of the restored canal, receiving generous support and assistances from many individuals up to the project's completion in September 2017. We heartily thank all the faculty/staff members and professionals from the industries for enriching and beautifying the NTU Campus.



1. Study Maps

Location of the canal from an aerial view, taken in 1945 (Photo courtesy of the Center for GIS, RCHSS, Academia Sinica).



2. Ground-Penetrating Radar Detection

The radar detection on October 19, 2015 yielded inconclusive results.



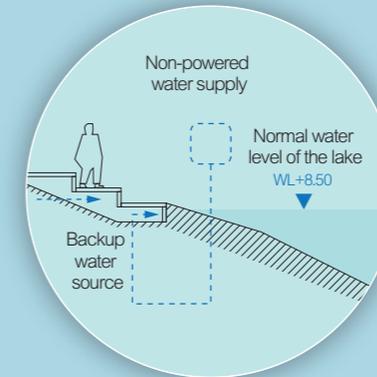
3. Excavation before Restoration

No canal remains were found in the excavation in May, 2016.



4. Discussions

The Student Association and surrounding departments were invited to join the discussions on restoration design.



5. Water System Design

Non-powered water supply from Drunken Moon Lake, with Xindian River as a backup water source.



6. Restoration Completed

