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NTU HIGHLIGHTS

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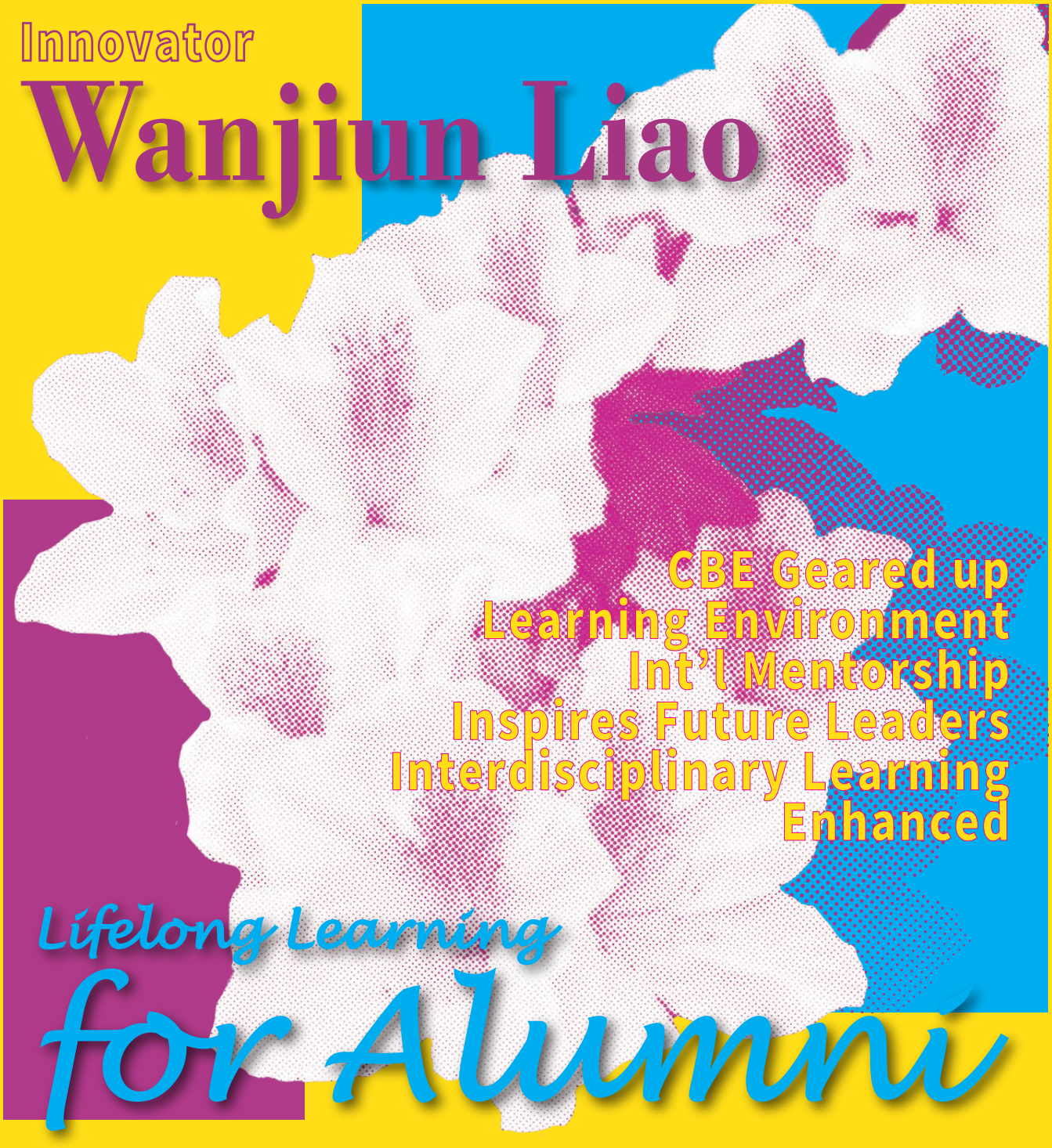
Innovator
Wanjiun Liao



CBE Geared up Learning Environment
Int'l Mentorship Inspires Future Leaders
Interdisciplinary Learning Enhanced

Lifelong Learning for Alumni

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The colorful blossoms on campus mark the beginning of Spring.

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Wanjiun Liao, Distinguished Professor of the Department of Electrical Engineering, Breaks through Barriers of Time and Space with Innovations

Wanjiun Liao, Distinguished Professor of the Department of Electrical Engineering, is currently offering the course Advanced Wireless Networking. On the first day of class, she asked the students to raise their hands if they used 5G services. Her request was met with silence and no hand were raised. However, every student raised their hands when she made a second request: “Raise your hand if you have 4G services on a 5G smartphone.”

How It All Started

While 2020 is popularly known as year one of the 5G era, Prof. Liao set off on her 5G quest much earlier. That seed was planted when she was a Ph.D. student in the United States. High-speed Internet was all the rage there back then, so Prof. Liao started to conduct research on interactive TV, focusing on providing VOD (video on demand) services with broadband technology. While VOD did not catch on, online streaming did realize people’s need for interactive TV.

Prof. Wanjiun Liao holds that students can unleash their full potential if they find their passion.

The essence of technological innovation can be witnessed in the way that people's needs continuously challenge technological development. This challenge is what motivates Prof. Liao to engage in communications research. In her view, everybody can see the unlimited possibilities in technological improvement. "For me, the challenge is about overcoming the restrictions of time and space from the perspective of user experience." One of the issues she cares deeply about is how to allow everybody to enter the same virtual space to share the same "time."

Advantages and Applications of 5G

Users can clearly feel the difference in speed when upgrading from 3G to 4G. However, if 4G is more than adequate for streaming their favorite dramas, why is there a need for 5G? Prof. Liao explained, "The current delay for Facebook Live is 8 seconds. With complex figure skating jumps that can be completed in much shorter than one second, 8 seconds can feel like a century!" Moreover, concepts like interactive VR, self-driving cars, and smart factories cannot be realized without real-time response. Nowadays, "Metaverse" is the talk of the town, but the users might feel dizzy if their VR feed cannot be synchronized. Nevertheless, people don't seem to appreciate the difference in the speed of 5G over 4G, so the penetration remains low. According to Prof. Liao, part of the reason for this is that 5G applications target private enterprise networks, especially vertical applications in AIoT (AI + Internet of Things).

5G research in Taiwan kicked off in 2010, focusing on high speed, large capacity, and low latency. Expensive equipment, such as base stations, 5G spectrum, and edge servers, are required to build a 5G network. To this end, Prof. Liao has actively pursued industry-academia cooperation, with a 5G network built by Chunghwa Telecom and base stations sponsored by alumni. With the concerted efforts of all parties, NTU brought the "5G Campus Pilot Network" to life in 2018. This network provides the advanced foundation on which many forward-looking research results can be presented, including 5G VR Metaverse and XR.

In addition, Prof. Liao's research team, including professors at National Central University, have cooperated with teams from Taipei Veterans General Hospital and Mackay Memorial Hospital to apply 5G, AI, and VR technologies to medical care. Taipei Veterans General Hospital launched a VR outpatient clinic through which the team provides house care and treats diseases, such as Alzheimer's. VR headsets are placed on the

Q&A with Prof. Liao

Professor Wanjiun Liao.

Q: What are your hobbies?
A: I enjoy jogging and reading.

Q: What do you like the most about NTU?
A: Research environment. My office is where I spend most of my time.

Q: What would you like to do if you could go back to your university years?
A: I would learn how to invest and mange finances, which I am really not good at right now.

Q: Name one person who has the most influence on you.
A: There are many. Different people have influenced me during different stages of my life.

Q: Name one thing that gave you the biggest sense of achievement.
A: Climbing the North Peak of Jade Mountain.

patients to gauge their reactions to interactive multiplayer scenarios displayed by VR and then analyze their behavior for better training and therapy. While the concept seems simple, there are many obstacles to overcome. For example, 5G edge computing are required for the feed to be synchronized among multiple VR users in the same virtual space. Prof. Liao emphasized that the technology can be used by multiple people distributed in different places, eliminating geographical limitations with ultra-low latency. More importantly, the problem with cybersickness in wireless VR can be significantly reduced and the quality of user experience can be greatly improved. Lessons learned in this research were incorporated into a 6G White Paper led by the EU's 6G Flagship Expert Team in 2020.

Breaking the Myth to Follow Your Heart

Prof. Liao avowed, "The core of engineering is making it happen." Finding a solution to the problem and developing technologies that improve human life are the essence of invention. When Prof. Liao started teaching at NTU, she realized there were no other female faculty members in the department. She sees it as her mission to encourage female students to pursue careers in electrical engineering, and she stressed that educating young girls is the only way to fulfill the vision of "women in engineering." As a professor, she sees inspiring the students' passion to learn and putting them on the right track as her most crucial tasks.

BIO

Wanjiun Liao

Distinguished Professor, Department of Electrical Engineering, NTU

Wanjiun Liao received BS and MS degrees in Computer Science from National Chiao Tung University, Taiwan, in 1990 and 1992, respectively, and a Ph.D. degree in Electrical Engineering from the University of Southern California, Los Angeles, California, USA, in 1997. She is a Distinguished Professor of Electrical Engineering, National Taiwan University (NTU). She was the Department Chair of Electrical Engineering at NTU, the Provost of NTU, and the General Director of the Department of Engineering and Technologies in Taiwan's Ministry of Science and Technology. Her research is focused on the design and analysis of wireless and multimedia networking, AI for edge computing and mobile computing, and green networking. She received many research awards and recognitions from different organizations, including the Outstanding Research Awards of the Ministry of Science and Technology, the Academic Award and National Chair Professorship of the Ministry of Education, and the National Industry Innovation Award of the Ministry of Economic Affairs in Taiwan. She is a Fellow of the IEEE.

Prof. Liao with her research team.

NTU International Mentorship Program: Inspiring the Leaders of Tomorrow

On March 23, National Taiwan University (NTU) held a press conference and letter of intent signing ceremony, officially introducing the NTU International Mentorship Program to the world. NTU President Chung-Ming Kuan presided over the event, which was graced by 100+ distinguished representatives of over 70 institutions, including foreign chambers of commerce, government organizations, startups, local industries, foreign companies, NGOs, and academic research institutions. President Kuan expressed his gratitude to all the guests and partners as he reaffirmed NTU's vision and duty to cultivate international talents and tap into the global talent market.

The NTU International Mentorship Program is the nation's first internship program tailor-made for the international students on campus. Many talented international students who wish to put down roots in Taiwan encounter challenges when searching for employment due to language and cultural barriers. To give the international students a better chance to find work in Taiwan, the NTU Office of International Affairs (NTU OIA) launched the program to improve the connection between Taiwan and the global talent market and to inspire the leaders of tomorrow.

Under the program, each participating student will receive assistance from mentors who work at the institution where they signed up. Whether it is a government unit, company, or non-governmental organization, the assigned mentor will help the student to obtain the necessary knowledge and job skills, as well as offer guidance.

Besides these internship opportunities, NTU OIA has also hosted two corporate visits and three career training workshops, giving the students the chance to get accustomed to Taiwan's working environment. The workshops include resume writing training, mock interviews, and an introduction to the Taiwanese workplace culture. In the workshop, students develop the soft skills required to thrive at work and can then confidently commence their internship at the organization with which they were matched.

NTU is a world-class university, and its rich education program attracts over 3,000 foreign students from 70 countries every

year. The growing presence of international students has helped build a more diverse campus environment, enriching the school's learning program. "The institution of higher education of today must be more than just a place where students obtain a degree. We want to foster a welcoming and dynamic environment and provide our students opportunities that translate into success beyond their time here," asserted President Kuan.

The NTU International Mentorship Program gives international students a chance to gain on-the-job experience in Taiwan, understand the field or company in which they are most interested, establish important contacts, and increase their chances of receiving a job offer in Taiwan.

President Kuan concluded his opening remarks, "One day, these students will grow into leaders who can help local companies enter the global market. It is my hope that all the students who participate in this program can acquire valuable working experience as they test-drive possible jobs and explore their career options. I am grateful to see so many partners and alliances joining hands with NTU to develop and nurture our international talents. With this program, we can truly fulfill our mission to recruit, educate, and retain the best talents."

Syeda Zehra, a Pakistani doctoral candidate in the Department of Chemistry, arrived in Taiwan five years ago. She stressed that, "The language barrier is the main reason why it is challenging for international students to get employed in Taiwan. However, with the International Mentorship Program, internship and job-related information will become more accessible to us, and we will also have the chance to get into contact with local enterprises." Thanks to this program, Zehra will soon embark on her internship journey at Covestro Taiwan.

Renee Chen, Head of Communications of Covestro Taiwan, also seized the opportunity to praise the program, affirming that Zehra is the kind of talent that international companies are looking for nowadays. "Our TPU Research and Development Center was established in Taiwan, and we hope more outstanding talents like Zehra will join us in the future."

Scan the QR Code to visit the program's official website.

1 2 3

1.Group Picture.

2.Syeda Zehra, a Pakistani doctoral candidate in the Department of Chemistry, and Renee Chen, Head of Communications of Covestro Taiwan.

3.President Kuan delivering his opening remarks.

Once an NTU Student, Always an NTU Learner!

One of the main goals of the Future NTU vision is to break through the limits of conventional higher education and offer courses for lifetime learning. Now, the NTU AR project makes it possible for alumni to access a variety of courses on campus with their Alumni Learning Account.

To gain a better understanding of the needs of the alumni community, NTU School of Professional Education and Continuing Studies (NTU SPECS) conducted a survey of their course preferences and learning needs in 2021. The survey showed that 10.5% of the alumni had already participated in NTU SPECS's activities, such as seminars, lectures, or forums. Among the non-credit professional courses listed, management and finance subjects were most popular, followed by innovation, business entrepreneurship, and liberal arts studies. The survey also revealed that 97% of the alumni were willing to resume their learning on campus, and 50% were interested in auditing courses in the program during the next year to improve their professional skills or simply out of personal interest.

With the official launch of NTU SPECS's "NTU AR" project in January of this year, the school is ready to embrace the third wave of education innovation. The letter "A" stands for "alumni" while the letter "R" represents "R&R": "Return and Recharge." NTU AR is NTU SPECS's warm welcome to every alumnus to return to their alma mater for a full recharge.

In addition to the "Alumni Learning Account," NTU SPECS also set up a "Course Wishlist" for alumni to list the courses they would like to attend. Based on the expected demand, the school has already begun organizing such highly requested courses as financial statement analysis, performance management, data visualization, big data, and business analysis.

From February of this year, alumni may also choose to audit a number of elective courses alongside the enrolled students after a screening process. What could be better? Alumni can attend the first course for free and receive a 50% discount for the rest of the courses. For those who prefer online learning, NTU SPECS also offers free online courses to any alumni who set up their Alumni Learning Account.

NTU President Chung-Ming Kuan remarked, "Learning is a continuous journey, and NTU AR will create an inclusive environment where our alumni can pursue their passion for learning back on campus."

1 | 2

1.President Kuan delivering his opening remarks at "ESG Management and Training Course."

2.NTU AR Promotional Poster.

Professor Kuo-Chun Yeh Awarded the 2021-24 EU Jean Monnet Chair

The EU Jean Monnet Chair was established in memory of Jean Monnet (1888-1979), a French political economist and the designer of European economic integration. Under his initiative, the European Coal and Steel Community and the single market developed into the European Union and the euro area, which became a model for other regions to achieve cooperation and peace. Around 50 scholars are selected as Jean Monnet Chairs every year, mostly from EU member states, accession countries, and other European countries. The elected chairs from non-European countries are therefore few and far between. Professor Kuo-Chun Yeh of NTU's Graduate Institute of National Development was awarded this honor this year. This is the third time an NTU faculty member has been awarded the Jean Monnet Chair, following Professor Hung-Dah Su of the Department of Political Science in 2010 and Professor Ming-Yan Shieh of the College of Law in 2016.

Prof. Yeh won the honor for his project "The EU-East Asia Industrial Interaction," which he submitted to the EU. The U.S. and the EU both have proposed their Indo-Pacific strategies and various economic security plans since 2021, spotlighting the issue of global supply chain restructuring. This past February, the EU Chip Act underscored that for the EU to achieve the goal of independent advanced chip production, Taiwan's cooperation with the EU would be crucial. These facts highlight the forward-looking and controversial nature of this topic and its significant impact on Taiwan's economy. Prof. Yeh conducts long-term research on the political and economic development of the EU and Taiwan-China exchanges, which have been published in renowned, international peer reviewed journals in economics and political science.

According to the agreement between NTU and the EU, Prof. Yeh will offer courses on major political and economic events in the EU, under the auspices of the EU Jean Monet Chair commencing in the 2022-24 academic year. These courses will give NTU students the opportunity to deepen their understanding of the operations of the EU and its evolving role in East Asia.

1 1.Professor Kuo-Chun Yeh.
2 2.EU funding program logo.

Engage and Evolve: 2022 NTU Global Partnerships Summit

Group Photo of 2022 NTU Global Partnerships Summit.

The 2022 NTU Global Partnerships Summit was held on March 24, attracting over 28 participants from the major representative offices and academic organizations in Taiwan. NTU President Chung-Ming Kuan, Executive Vice President Chia-Pei Chou, Vice President for International Affairs Hsiao-Wei Yuan, Vice President for Academic Affairs Shih-Torng Ding, and various college leaders were on hand to welcome NTU's distinguished guests.

President Kuan presented his opening remarks and extended his gratitude to all the summit participants on behalf of the university. He stressed, with feeling, "This is the first large-scale international conference we have hosted since the outbreak of COVID-19. I'm thrilled to see the participation of so many friends and partners, and I look forward to sharing NTU's success in sustainable development and innovative education."

Last semester, Executive Vice President Chou and Vice President for International Affairs Yuan co-hosted a course named "Global Competence with Internationalization at Home." The course was a weekly guest lecture series, giving students the opportunity to listen to government representatives and be exposed to a variety of cultures—which inspired many lively discussions on global and cross-cultural issues. Executive Vice President Chia-Pei Chou pointed out that though NTU seldom has had the opportunity to collaborate with the representative offices in Taiwan, she hopes to strengthen these connections through partnerships.

Vice President for International Affairs Hsiao-Wei Yuan explained NTU's efforts to develop global talents. Afterwards, representatives from the Graduate School of Advanced Technology, the International College, and the D-School introduced the special features, missions, and resolutions of their respective programs.

The Summit provided an occasion for leaders from the representative offices in Taiwan and NTU to engage in futurist conversations to reinforce the commitment to deepen ties. The event also included the World Café where participants held group discussions on such topics as "From a Sustainable Campus to a Sustainable World," "Social Responsibility as a Global Citizen," "Technology Representing Taiwan's Global Economic Position," "Innovating Education to Break Through Academia-Industry Barriers," and "Post-pandemic Globalization and Localized Internationalization," in exploring how best to cultivate future global talents.

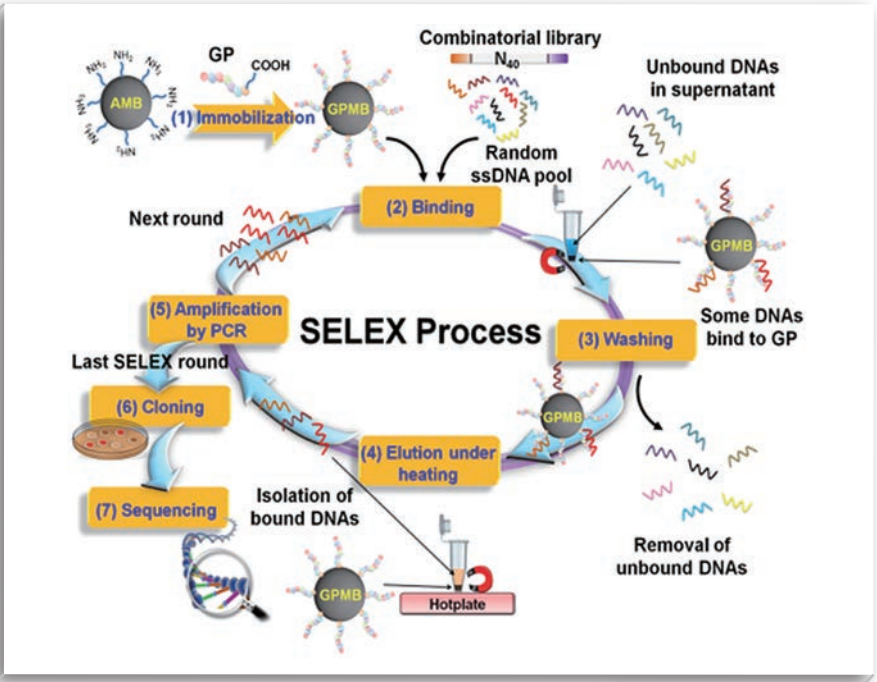
During her closing remarks, Vice President for International Affairs Yuan highlighted some promising ideas that came up during the World Café—the promotion of global academic research, overseas education programs, and global talent development. The summit fostered rich conversations on global talent cultivation and identified opportunities for greater synergy between NTU and the representative offices.

Professor Yit-Tsong Chen's Research on Rapid and Accurate Nanoelectronic Biosensors Published in *Nano Today*

Diabetes is a common metabolic disease that exerts a great impact on a patient's quality of life. Early detection and effective medical treatment are critical to controlling the disease. The research team led by Professor Yit-Tsong Chen from the Department of Chemistry of NTU worked with two physicians from Mackay Memorial Hospital, Chih-Yang Chen and Tse-Hao Chen, as well as the theoretical calculation team led by Professor Sheh-Yi Sheu from the Department of Life Sciences and Institute of Genome Sciences of National Yang Ming Chiao Tung University, to isolate a novel aptamer (Apt_{GP}) using the SELEX technique (systematic evolution of ligands by exponential enrichment, Figure 1). This aptamer has a strong affinity for glycated hemoglobin A1c (HbA1c) in human blood, through the binding with the glycated N-terminus of the hemoglobin β-chain (referred to as glycated peptide, GP) into a GP-Apt_{GP} complex, with the dissociation constant in phosphate buffered saline as K_d = 1.1 ± 0.1 nM. Professor Sheu's research team conducted molecular dynamics simulations to calculate the three-dimensional structure of the GP-Apt_{GP} complex.

The Apt_{GP} and polyethylene glycol (PEG) were co-modified on a silicon nanowire field-effect transistor, referred to as the PEG:Apt_{GP}/SiNW-FET biosensor, which enables the highly sensitive, rapid, and accurate detection of the HbA1c levels in human blood samples. SiNW-FET is a nanoelectronic transistor built with semiconductor silicon nanowires as charge channels. The SiNW-FET designed by the team is composed of hundreds of silicon nanowires, in nearly parallel connections, underneath the interdigitated electrodes (with the distance of 3 μm between the adjacent source and drain electrodes). This PEG:Apt_{GP}/SiNW-FET biosensor has highly responsive sensitivity to the electric-field change caused by the captured HbA1c. Consistent with that obtained by the traditional capillary electrophoresis method, the measured HbA1c concentration not only has the advantage of rapid, cost-effective detection but also can be used for point-of-care diagnostic tests.

This new biosensor requires a very small blood sample to be valid for testing. If different probe molecules can be modified on SiNW-FET to detect biomarkers of different diseases, diagnosing a variety of diseases with one drop of blood will no longer be a dream.



Scan the QR Code to read the journal article.

An aptamer with strong binding ability to the glycated peptide of HbA1c was screened by the magnetic bead-assisted SELEX technique.

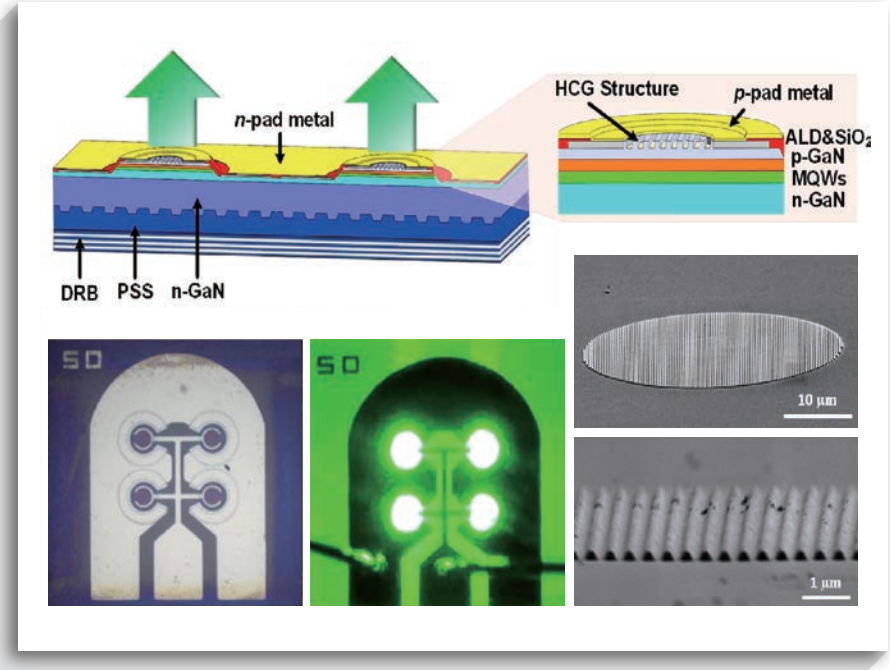
NTU Accelerates the Future of Ultrafast Smart Display Communication

Ultrafast optical wireless streaming transmission of high-definition video in a fraction of a second is no longer just a dream. With the joint efforts of Professor Gong-Ru Lin from the Graduate Institute of Photonics and Optoelectronics of NTU, Professor Hao-Chung Kuo from the Department of Photonics of National Yang Ming Chiao Tung University, and Dr. Chih-Hsien Cheng from the University of Tokyo, the world will now witness how a smart display using RGB micro-LED will allow data encoding and transmission beyond 5-Gbit/s data in free space by leveraging ultrafast 2×2 green micro light-emitting-diode (G-μLED) array.

In the past, material and device designs have hindered the development of high-speed green μLED, yet this newly unveiled G-μLED array boasts a unique design and package, making it the world's fastest visible light wireless data communication LED device. This high-speed performance is the result of a breakthrough in high-speed blue and red μLEDs, which allows the development of free-space optical wireless communication from RGB-μLED array-display instruments. The research was selected out of 10,000 publications to be included in *Optica*'s "Spotlight on Optics" website by Professor Haas of the University of Edinburg.

According to Prof. Haas, a world-renowned inventor of LiFi (Lighting Fidelity) and a pioneer in the field of VLC (Visible Light Communication), the key to achieving ultrafast optical wireless streaming transmission of high-definition video is to find the ideal candidate for a projecting light source in the visible spectral region capable of realizing distortion-free augmented reality vision. Moreover, the green μLEDs must have narrow linewidth, stabilized wavelength, weak droop effect, and high quantum efficiency to leverage the spectral frequency band. Prof. Haas praised Prof. Lin and Prof. Kuo for their device's unique and elegant structural design, which lowers emission efficiency under high current density injection. Furthermore, Prof. Lin's idea of packaging and integrating the array to a microwave adapter improves high-speed data encoding assembly.

This ingenious design by NTU not only is a groundbreaking academic discovery but marks a new era for intelligent display and metaverse-related applications that will lead to its exploding demand in intelligent display, augmented reality, and lighting communication industries.



Scan the QR Code to read the journal article.

Upper left: Device Structure of a semi-polarized green micro LED. (G-μLED)
Upper right: The semi-cylindrical grating design for the semi-polarized G-μLED.
Middle right: The bird-eye view of the semi-polarized G-μLED surface.
Lower left: The microscopic image of the G-μLED.
Lower Middle: The light spot of the G-μLED.
Lower right: The microscopic view of surface grating of the G-μLED.

Reconstitute Cellular Asymmetry with Synthetic Localized Proteolysis

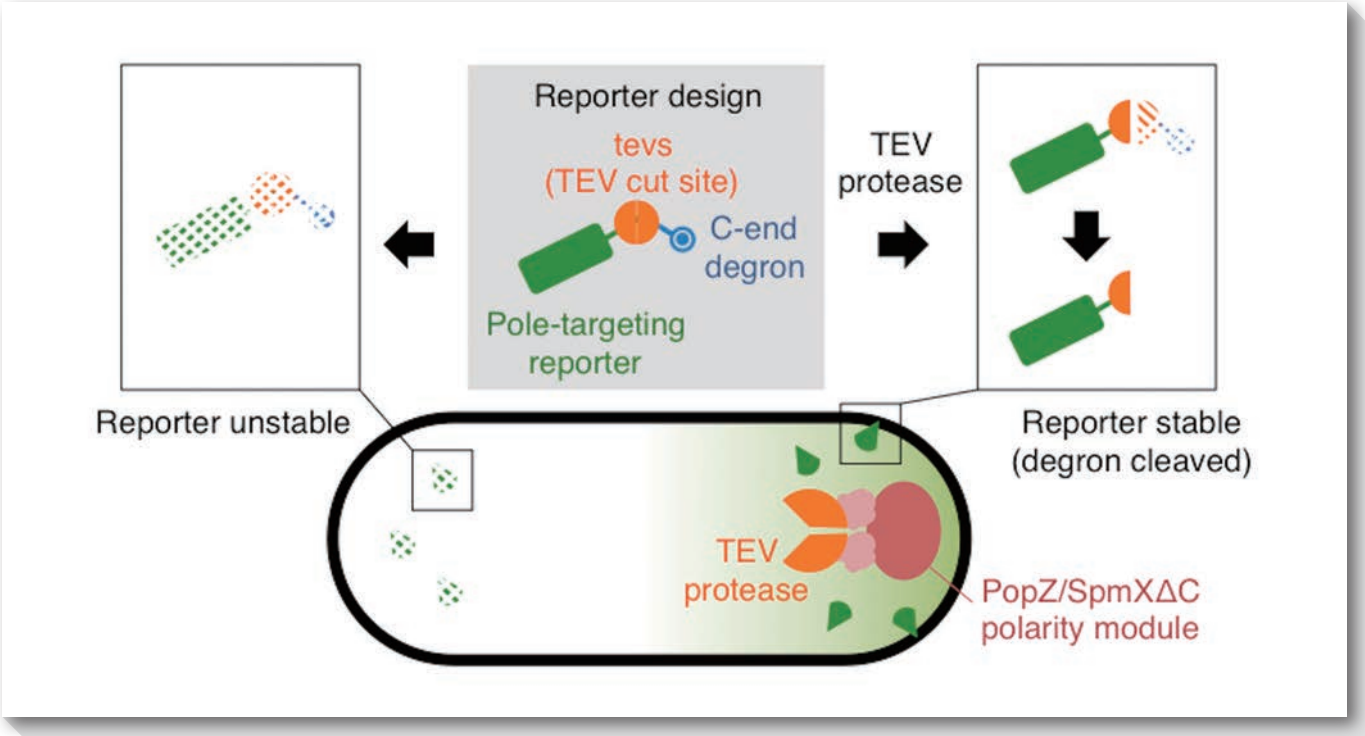
Asymmetric cell division is fundamental for cellular development across all kingdoms of life. While traditional top-down approaches have identified critical players and interactions, the natural redundancy, while intended by evolution to ensure the robustness of the process, can complicate the understanding of underlying principles.

In light of the current restrictions, a research team led by Associate Professor Hsiao-Chun Huang of NTU's Institute of Molecular and Cellular Biology has taken a bottom-up "synthetic biology" approach to explore the design principles of asymmetric cell division. The team previously demonstrated that, in *Escherichia coli*, a heterologous oligomeric protein can act as a robust polarized scaffold to functionalize RNA polymerase asymmetrically, and that limiting effector diffusion is another necessary axis for asymmetric partitioning and functional differentiation at cellular length scale (*Nature Communications*, 2021). Later in the same year, the team published another study to demonstrate that similar intracellular asymmetry can also be accomplished by polarized protein degradation via recruitment of TEV protease using the same oligomeric scaffold (*ACS Synthetic Biology*, 2021).

Compared to gene expression, a post-translational regulation can bypass the transcriptional/translational delays in the operation to enable rapid response to a stimulus. Therefore, it is envisioned that the second study points to a better design for dynamically controlling protein local abundance, which may potentially be useful for manipulating processes that require versatile polarization (e.g. cell migration). The study also provides complementary evidence that, in addition to localized protein synthesis at defined subcellular locations, localized degradation can serve as an alternative to polarize cellular signaling in a cell.

Scan the QR Code to read the journal article in *Nature Communications*.

Scan the QR Code to read the journal article in *ACS Synthetic Biology*.



Recruitment of TEV protease with a polarized scaffold to reconstitute cellular asymmetry.

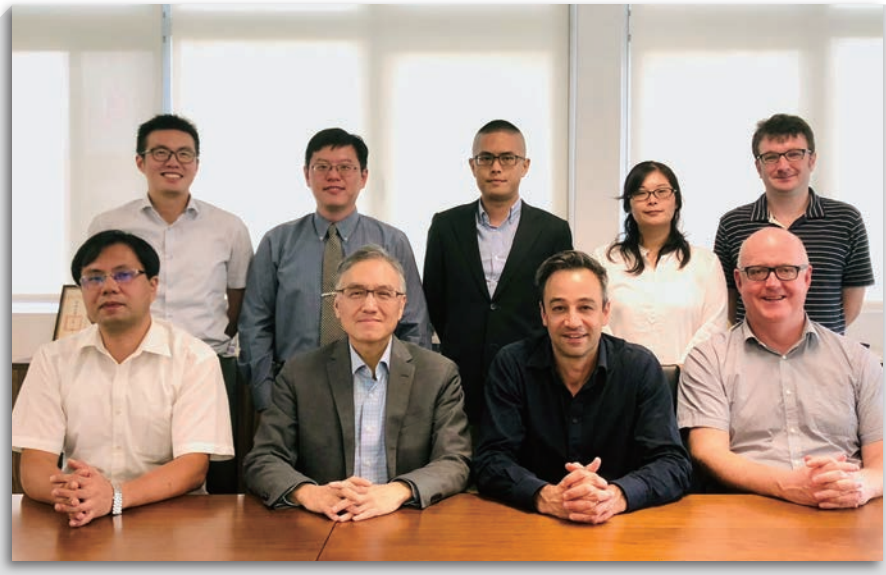
China's Soft Power Diminished by Maritime Territorial Disputes

Since the Hu Jintao era (2003-2013), China has been proactively elevating its soft power, a country's capability to affect other countries' behaviors by exercising non-coercive means. For example, by establishing Confucius Institutes overseas and the Asian Infrastructure Investment Bank financing infrastructure constructions in developing countries, China has enhanced its soft power via spreading Chinese culture, language, and its success stories to the world.

Have China's efforts been effective? According to a research paper on China's soft power in East Asia, maritime territorial disputes have undermined China's soft power. The research, carried out by Assistant Professor Jason Kuo and Professor Min-Hua Huang from the Department of Political Science of NTU as well as Academician Yun-Han Chu, analyzed data collected from the Asian Barometer Survey, a multinational opinion poll conducted by the Hu Fu Center for East Asia Democratic Studies at National Taiwan University, and suggested that civilians in East Asian countries with maritime territorial disputes with China are less likely to take a positive view on China's influence on their respective countries than those without.

While China has spared no efforts in boosting its soft power, it has also been flaunting its military might to support its self-declared territorial integrity in the East and South China Seas. These actions have been regarded as provocative, since neighboring countries also claim sovereignty over these territories. In 2013, disregarding Japan's protests, China operated military drills across a controversial area of the East China Sea, which it unilaterally designated as an "air-defense identification zone." More recently, China has deployed full-blown military bases on controversial artificial islands in the South China Sea, raising animosity in Vietnam, Indonesia, the Philippines, and Malaysia, all of which also claim rights to overlapping maritime territories.

The research also pointed out that the negativity likely comes from an anti-China sentiment pervasive in society, aggravated and permeated by media reportage. It is noteworthy that the international distributional implication of the maritime territorial disputes has been overlooked in the existing literature and political analyses on China's soft power. Despite the many efforts that China put into building its soft power in East Asia, its hostile actions have been seriously counter-productive to its agenda. The research result was published in the Volume 31, 2022 - Issue 133 of *Journal of Contemporary China*.



Scan the QR Code to read the journal article.

Group photo of the research team. (Back row second from the left is Assistant Professor Jason Kuo, front row first on the left is Professor Min-Hua Huang, front row second from the left is Academician Yun-Han Chu)

Pioneering the Next Generation of Interdisciplinary Learning

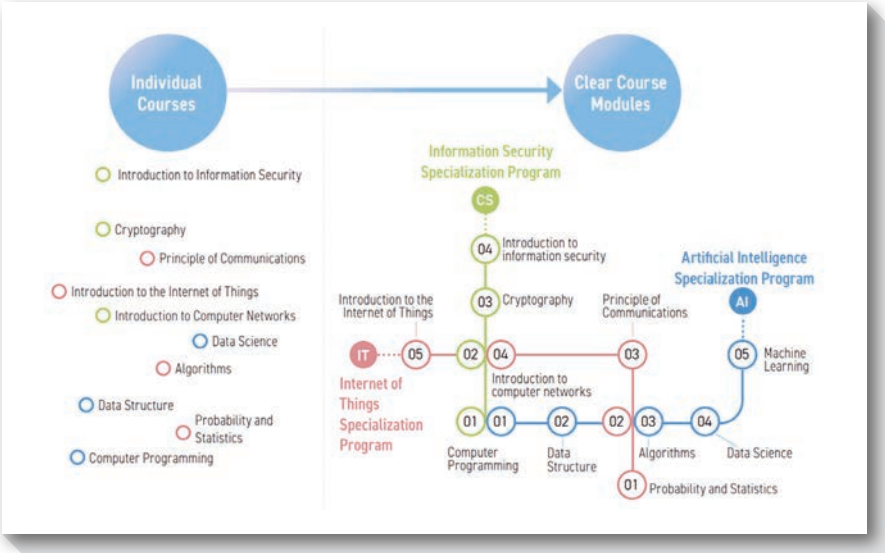
NTU recently unveiled its Specialization Programs, one of the school's most innovative curriculum reforms to date. Unlike standard curriculums, which require students to take courses from a fixed list to receive a package of predetermined knowledge, the Specialization Programs offer students a menu of various course modules to choose and explore. Various departments have organized unique specialization programs, aimed to enhance the students' core skills, academic performance, and future development. Entering a specialization program means choosing a course module. Participating students must attend four or five of the module courses and complete 12 to 15 credit hours. Basically, the specialization programs integrate different areas of study, provide students with a framework for knowing which additional courses to attend in order to specialize in a specific subject area, and offer guidance in their interdisciplinary studies.

Since the program was launched in the fall semester of 2021, 12 colleges and 50 learning units have already launched 214 programs covering a wide range of study areas. For example, the program in "Offshore Wind Energy," offered by NTU's Department of Engineering Science and Ocean Engineering, introduces students to the basic principles of offshore wind power—the wind turbine and its maritime engineering, while the Department of Political Science's program "Public Opinion Analysis" includes an in-depth seminar on public opinion. "Forest Therapy," a program co-launched by the School of Forestry and Resource Conservation and the Department of Psychology, provides forest therapy training for students to become certified forest therapy guides. And, the program in "Precision Laboratory Medicine and Bioinformatics" is co-hosted by the Department of Clinical Laboratory Sciences and Medical Biotechnology, the Department of Computer Science and Information Engineering, and the Graduate Institute of Medical Genomics and Proteomics.

The Office of Academic Affairs also provides a Specialization Program Compass to guide students in mapping their course modules. The compass not only lists the requirements for each specialization program but allows students to check their course registrations and progress online. To date, 17,174 people have utilized this platform and 164 students have graduated with Certificates of Specialization Programs.

Looking to the future, NTU aspires to continually reinvent its curriculums and encourage every faculty member on campus to make improvements and deliver high-quality courses. With the launch of its Specialization Programs, NTU is pioneering new learning possibilities on campus and nurturing the next generation of interdisciplinary talents.

Systemizing individual courses into clear course modules.



Time to Lighten up with NTU CBE

The Center for Bilingual Education (CBE) was established in September 2021 with the goal of enhancing English proficiency among NTU students and enriching English learning. In keeping with its mandate, CBE spearheaded a new project coined “Eng-Lite program,” aimed to promote extracurricular English learning on campus. The name of the program “Eng-Lite” is a subtle play of words: a portmanteau of the words “English” and “Lite”, stressing the importance of English education yet also conveying a sense of lightheartedness expressed through the sound of the word “lite.”

CBE hopes to nurture an immersive English learning environment for students outside the classroom by establishing several English learning platforms across campus. Besides providing funds for interior and technical upgrades, the program invites every NTU college and department to organize extracurricular activities, such as English Corners, workshops, and seminars.

To facilitate the organization and operation of English Corners on campus, CBE recorded an English Corner demonstration session, now available on its official website, to guide different units. In the video, the facilitator begins the event and stresses to the viewers that “An English Corner is a place for students to come, have English conversations, and learn new knowledge in English. It’s a relaxing activity outside of classrooms and students should have fun!”

English Corners are expected to nurture a social community for students to learn from their peers and for language faculty to integrate out-of-class learning into their pedagogic practices. To ensure the quality of the English Corners, a talent pool composed of 18 NTU students with exceptional English proficiency has been recruited to support its operation. These students were selected through a rigorous screening process and received training in preparation workshops before being assigned to their respective units.

This year, 18 units joined the Eng-Lite Program, and a multitude of extracurricular English activities will begin in March. As CBE continues its efforts on campus, it is hoped that the number of applications will increase next year and every participant will witness NTU campus burst with passion for English learning and practice.

NTU CBE English Corner demonstration session.

VISION 2022:
Discover Your Perfect Match

After two years, the long-anticipated VISION 2022 Campus Recruitment kicked off on March 5 on NTU campus. This year's theme "Pioneering Digital Transformation and Upgrading Employment Prospects" expresses the hope that NTU students will succeed in an era of unprecedented, exponential change. The event included seven areas—Information Technology, Finance, Corporate Groups, Diverse Industries, NTU Industry Liaison Office's Member Area, International Talent Development Sector, and Human Resource Agency—and 442 booths. An estimated total of 312 enterprises participated in the event, offering students access to 25,000 potential job opportunities.

At the opening ceremony, President Chung-Ming Kuan welcomed the participating enterprises and stressed that interdisciplinary skills and adaptability are now high priorities in the job market. "With the Future NTU project, I hope students can be given the freedom to think outside of the box and explore different fields of study. We are now working on 'NTU Industry Academy,' a place where industry and academia can find a better way of collaboration."

A distinguished guest, Mr. Yancey Hai, Chairman of Delta Electronics, also shared a choice piece of wisdom with the students: "When you are a fresh graduate, remember to read, take care of your health, and engage in lifelong learning. However, in the long-term, you must find a vocation that you are passionate about."

The highlights of VISION 2022 included the debut of the International Talent Development Sector and a virtual career fair. In addition, to help the international students find better employment opportunities, NTU Office of International Affairs handpicked several enterprises, attracting numerous local and foreign students to learn about an exciting range of career opportunities. At the same time, an unprecedented virtual career fair was held online. By leveraging the online platform, recruiters could host virtual booths and online company information sessions to reach out to potential job seekers and hold one-on-one online meetings with candidates during selected time slots.

As students navigate online and onsite resources in search of their career path, it is hoped that both NTU students and enterprises will find their perfect match.

The Royal Palm Boulevard crowded with VISION 2022 visitors.

NTU Girls Baseball and Softball Takes Flight

I once thought I was satisfied with watching baseball on TV: sitting on the edge of my seat for nine innings, crying out in desperation when the outfielder catches the ball, and exclaiming in awe when the pitcher strikes out yet another batter. That was before I joined NTU Girls Baseball and Softball (NTU GBS). I never realized just how interesting and challenging it could be to adjust my grip of the ball to throw different pitches, nor how gratifying it could be to hear the crack of the bat hitting the ball. Now when I cheer for my idol, the two-way star Shohei Ohtani, no longer do I only praise his four-seamers and splitters, which are absolutely impossible to hit, or bow to how he rakes at the plate; I practice hard with my teammates to improve my skills as well.

Before I go into detail about our training sessions, let me first explain why the team is called Girls Baseball and Softball. Established fifty years ago, the NTU GBS was initially a varsity softball team. As few teams played softball and most girls wanted to play baseball competitively, the NTU Softball Team gradually transformed into a baseball and softball team. When the University Baseball League (UBL) included the women's group in its agenda in 2015, the NTU GBS quickly made its debut in the competition in 2016.

The transition from softball to baseball was no easy feat. Although the two sports share some similarities, the team has to cope with several differences between them—the most obvious being gear and equipment. By the time I joined the team, many of the initial hardships had been overcome. Team veterans told us that most of the resources we are enjoying now were obtained by the Head Coach, Ms. Pi-Ching Lu. Were it not for her efforts, the team would not have had the opportunity to play baseball, let alone participate in the UBL. The NTU Baseball team (the men's team) was also a great help, generously lending us gear and handing down baseball know-how so that we could enter the competition without a hitch.

Now, after so many years, we have managed to overcome all of our shortages and spread our wings as a fledgling team.

On our quest to grow into a fierce falcon, we have welcomed anyone interested in the game to join, even novices. In fact, eighty percent of our members are new to baseball and softball. Our coaches always emphasize the importance of building a solid foundation, and working on basic skills accounts for a large part of our practice sessions—in which novices can jump in and take part. Furthermore, teachers and veteran players are uniformly patient, caring, and happy to share their skills and knowledge. The team's regular practice sessions include Saturday afternoons, one morning practice on weekdays, one evening batting practice, as well as self-arranged practices. Joining baseball competitions is another effective way for players to develop and learn. Nowadays, there are more and more chances to play in women's baseball games, and we cherish these opportunities to play against other teams. With our regular training and occasional matches, the team has been improving by leaps and bounds. We have started to fly above the ground: in 2020, we won 3rd place in the UBL, and in 2021, we placed 8th in the National Women's Baseball Tournament.

For me, baseball is a real team sport, and you cannot play the game well without having good team dynamics. That is why I always enjoy the special training camps during winter and summer vacations. While orientations, farewell parties, and end-of-semester banquets are all occasions where members can get to know each other better, it is these intensive one-to-two-week training camps and team trips afterwards that establish really tight bonds among us.

Do you also have a baseball dream? Which one stirs your dreams more? Pitcher Ohtani reading the game on the mound, or Hitter Shohei receiving the shouts and cheers from the batter's box? Come and play on the red clay with us, be the player you want to be!

Group photo after the 2021 National Women's Baseball Tournament.

Penghu 8K Princess has officially evolved into 9K Princess!

A perfect hit!

The thrilling third-base crash!

Enjoy Your YouBike 2.0 Ride at the 2022 NTU Azalea Festival

A soft, gentle breeze stirs the palm tree leaves, bearing the fresh scent of new azalea blossoms. The azalea color pageant on campus marks not only the arrival of Spring but the opening of the beloved NTU Azalea Festival. Every March, the festival attracts aspiring youths from across the nation to draw inspiration from the vital ambiance of the school.

The opening ceremony of the 2022 NTU Azalea Festival and Department Expo was held online, beckoning thousands from home and abroad to appreciate the lush campus scenery. The event showcased the unique features of every NTU department while giving visitors a glimpse of campus life. In addition to the live streaming events online, an unprecedented virtual reality interface, the festival also included a series of offline events, such as campus visits, museum tours, ecological tours, as well as public art and science exhibitions. Visitors could take relaxing walks along the canal in the Xingsheng South Road area, appreciate the sumptuous colorful flowers along the campus lanes and boulevards, and immerse themselves in the rich diversity of events on campus.

The 100-hectare campus has always been a tranquil green haven amidst the hustle and bustle of Taipei city. Since nearly everyone rides a bike on campus, NTU initiated a collaboration with Taipei City Government Department of Transportation and YouBike to launch the upgrade pilot project for YouBike 2.0 to build a bike-friendly campus. In 2022, the number of YouBike 2.0 stations near the area reached a total number of 115, allowing thousands of students to get around campus with ease, simply by renting a bike.

To promote the use of YouBike 2.0, NTU grants a 100TWD award to students who have added over 500TWD to their YouBike account. In 2020, 588 students were eligible for the award, and the number of biking permit applications from college freshmen dropped by 20 percent. With the establishment of parking lots and YouBike stations around campus, students can park their cars in the surrounding parking lots and enter the campus by rental YouBikes. NTU also introduced parking lots for shared cars and bikes, charging stations, as well as battery exchange stations for faculty members and students.

Shared vehicles have made NTU more sustainable and campus life more convenient. When the colorful azaleas bloom in springtime, come enjoy a ride in the City of Azaleas!

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1.Azaleas in bloom on NTU campus; people riding YouBike 2.0 to appreciate the beauty of the campus.

2.The colorful blossoms on campus mark the beginning of Spring.

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