Newsletter of Yuntech

National Yunlin University of Science & Technology
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Latest News

Outstanding Performance in University Impact Rankings in 2021; NYUST Highly Recognized Globally by its Sprouting & Sustainable Approaches

According to the World University Impact Rankings for 2021 published by Times Higher Education magazine (THE), thirty-five elected universities in Taiwan were ranked from 101 to 200 as a whole. NYUST had several indicators that were ranked between 101 and 200 and achieved an overall ranking of 301-400. NYUST took the third place among the elected universities in Taiwan and won the first prize among universities of science and technology. It is apparent that NYUST is a university that emphasizes sustainable development and manifests important influence around the globe.

THE's ranking was based on the seventeen sustainable development goals (SDG) of the UN for assessment and evaluation and a total of 1,240 universities around the world participated in the appraisal. NYUST was honored with five brilliant goals accomplished, including Clean Water and Sanitation (SDG 6), Decent Work and Economic Growth (SDG 8), Industry, Innovation, and Infrastructure (SDG 9), Responsible Consumption and Production (SDG 12), and Peace, Justice, and Strong Institutions (SDG 16). YunTech achieved an excellent performance on one third of its goals by ranking 101-200 on them.

YunTech's performance on Industry, Innovation and Infrastructure (SDG 9) was particularly superb since it fell in the rank of 100-200 among 685 participating universities. The university attained a high score of 82.7 and achieved a first class position for Quarter 1. Furthermore, in connecting to the international community, NYUST embraced the ideas of international connection, sprouting, and sustainability to plan and promote overall school affairs in relation to Partnerships for the Goals (SDG

17). Consequently, we achieved a high score of 83.3 on Sustainable Development Education (SDG 17.4) and got ranked 400-600 for SDG 17 among 1,154 participant schools.

Youthful & Energetic Graduates of NYUST

In addition to the outstanding performance in THE's World University Impact Rankings, NYUST fulfilled its university social responsibility successfully through innovative teaching, connecting to industrial developments, and providing feedback to society. NYUST was the only university that was honored with six awards in Taiwan for Corporate Sustainability Awards (TCSA) for 2020, including the Taiwan University Sustainability Model Award (top honor), Sustainability Report Award (gold medal), English Report Award (silver medal, the only school that was awarded), Social Inclusiveness Award (NGO), and Sustainability Program Award for USR (bronze medal for collaborating on the construction of Laiji village of the Tsou tribe). Moreover, NYUST was No. 72 in the UI GreenMetric World University Rankings for 2020. For THE Awards Asia 2020, NYUST was shortlisted for the category of Teaching and Learning Strategy of the Year due to YunTech's PBL Research Center and College of Future, ranked among the top eight candidates in Asia. These achievements show that NYUST has reached an outstanding global level in innovative teaching in addition to a good grounding in sustainability.

Green and Pleasant Campus of YunTech

YunTech's president, President Neng-shu Yang, indicated that the school's development was based on five strategies, namely differentiation, intellectualism, industry-academia collaboration, internationalism and intelligentization with a view to corresponding to teachers' and students' development on economic, environmental and social demands. We expect to make excellent contributions to local and global welfare, create a campus of innovation, intelligence, friendliness and sustainability and move towards the vision of becoming an internationally renowned university characterized with innovative teaching and industrial connection. NYUST will continue working on educational R&Ds, industrial resources, sprout teaching, incubation of talented students, university contributions, and international impact to shape a sustainable campus. NYUST will also be active in expanding its impact upon the seventeen sustainable development goals (SDG) of the UN around the world to fulfill its university social responsibility (USR).

Awards and Commendation

YunTech's Smart Learning Shortlisted among the Top Eight Candidates in Asia for Technological or Digital Innovation of the Year 2021

In THE Awards Asia 2021 announced by the Times Higher Education (THE), YunTech's Smart Learning: Student Placement Scheme was nominated for the category of Technological or Digital Innovation of the Year among top eight candidates in Asia.
Among the other seven nominees were National University of Singapore, Hong Kong Baptist University, and Soochow University. YunTech's teaching quality was also focused on while it promoted teaching innovation. As YunTech was selected as one of the schools that would develop e-learning programs by the Ministry of Education, artificial intelligence (AI) and learning technology were introduced to build a well-established smart campus.

Few students and the difference in entry learning are challenges that higher education needs to confront. YunTech set up a smart student placement scheme to realize precise assistance for learning (intelligent tutoring robot as a companion) via constructing a smart learning environment. YunTech also introduced an early-warning system through robotic process

automation to develop a smart learning campus through e-learning and courses of excellent quality for new students to reduce the desertion rate successfully.

YunTech utilized data-mining analysis to support institutional needs, introduced an intelligent tutoring robot for early-warning and used a learning dashboard for precision guidance to enhance learning performance. According to the survey on which a total of 1,345 students participated in regarding the curriculum of 2020, 87.7% thought the curriculum helped them a lot and agreed precision guidance was the trend in the future.

Besides smart learning, YunTech integrated the industry-academic capability of the school with research momentums to develop AI and information talents largely required by the industry, government, and academia. A specific action program was to establish the College of Artificial Intelligence, which not only combines industrialization and intelligence of the Problem-Based Learning Center (PBL), but also motivates internationally excellent academic researchers and Yushan scholars to reinforce the research momentums of the AI College to become international and academic through the Future Technology Research Center. Being a role model of practical application for universities of science and technology, YunTech has been active in expanding the influence of higher technological and vocational education in Taiwan worldwide via becoming a world-class university of science and technology with characteristics of innovative teaching and industrial connection.

Industry-Academia Collaboration

Innovation Practice of Issue Given by Industry & Solved by YunTech; Intelligent Recognition Industry Forum Stunned by YunTech's AI Recognition Technology

Another Paradigm for YunTech's Industry-Academic Collaboration

YunTech's Office of Industry-Academia Cooperation held an eye-opening industry forum on Jan. 22, 2021 focused on the subject of Intelligent Detection via AI Recognition. The industry witnessed the superb power of AI recognition technology developed by YunTech. Its application to the scientific detecting results on industrial quality control was especially startling. There were about one hundred participants from a variety of industries, including textile, electronic, technology, medical care, software developers, machining, conventional manufacturing and consultancy, etc. who joined this grand meet up.

The industry forum was held on Yunyen Hall on the seventh floor of the Industry-Academia Research Building, YunTech. President Neng-shu Yang, expressed in his speech that the reason YunTech established the Office of Industry & Academic Cooperation was to become a motivator for industrial upgrading as well as a partner for industrial R&Ds. YunTech's performance of industrial income (knowledge transfer) was ranked No. 28 by Times Higher Education (THE) among 1,500 universities in 93 countries. The industry-academia collaboration amount reached 1.5 hundred million New Taiwan dollars in 2020, reaching a record high since the inception of the school. Industry's trust in YunTech and every endeavor made by teachers and students of YunTech were highly appreciated. The Office of Industry & Academic Cooperation will be holding forums for different industries in the future to keep realizing the goal of Issue Given by Industry & Solved by YunTech. National Yunlin University of Science and Technology will continue working hard on becoming the No. 1 brand in industry-academia collaboration.

Intelligent Recognition Industry Forum:
a Photo of President Yang with Four Lecturers

This industry forum invited a great number of excellent elites, including Gen-wei XU, the CEO of Yunlin-Chiayi-Tainan Joint Services Center, Executive Yuan, as the moderator, Fu-qin Cai, senior supervisor for the Southern District of SGS Academy (Certification and Business Enhancement), as the keynote speaker outside the school to share "the significance of scientific inspection on business operation", Xian-huang Wu, a professor in the Department of Electrical Engineering, Qin-yi Zheng, an assistant professor in the Department of Mechanical Engineering, and Shi-yu Chen, an associat

e professor in the Department of Computer Science and Information Engineering of YunTech, to share their experiences and results of industry-academia cooperation in three areas, namely: Industrial Application of Intelligent Recognition: from AOI to AI, Development of Optical Scanning for the Tire Tread Depth Recognition System of a Vehicle Wheel, and Recent Applications in Hyperspectral Imaging for Production Classification and Defection Inspection. The actual application results regarding various intelligent recognition techniques in different industries over the past few years were laid bare. Essentially, inspection efficiency and accuracy were enhanced under the circumstances of short manpower and digital transformation. Smart decisions were based on precise and scientific quality inspection data in order for businesses to increase their competitive capability.

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Intelligent Recognition Industry Forum: Presentation by Professor Qin-yi Zheng

Upon completion of the forum, all participating guests were divided into two groups and led to the basement of the building to visit the intelligent recognition practice base and intelligent production line. Professor Xian-huang Wu and Assistant Professor Qin-yi Zheng operated onsite and explained the whole process to participants. A TV wall was also set up to play the intelligent recognition performance videos. All business representatives were deeply impressed by the films and written information provided. Most of them indicated during exchanges of opinions that they were quite happy to take part in this industry forum. They also stated that they not only had an understanding of the techniques and results of intelligent recognition accomplished by YunTech but also increased their confidence and would like to develop industry-academia collaborative relationships with YunTech. Furthermore, they also highly expected the Office of Industry & Academic Cooperation would hold industry forums for different professional fields in the near future. This activity ended in a joyful atmosphere.

Awards and Commendation

YunTech's Great Achievements in World Genius Convention and Education Expo, Japan

The 35th World Genius Convention and Education Expo 2021 was held online on May 17, 2021 and YunTech had five projects, which were awarded with three gold medals and two silver medals.

Three projects with gold medals

The **first** project was LOUKU – Intelligent Fire Extinguishing System developed by
Mr. Wu, Yi-Chang of the Department of Mechanical Engineering (members of the research team: Deng-Yang Huang, Yi Huang, Yu Chieh, Hao-Ming Peng, & Shi-Ling Zhang). This technology used robotic learning and visual identification to improve the existing detection and extinguishing functions of the fire extinguishing system. In addition, the mobile devices could be integrated to visualize notices and equipment management. It can be installed in factories and dwelling places and deployed in compliance with individual requirements.

The **second** project was Mobile Phone Light Fingerprint Identification System developed by Mr. C

hung-Wen Hung of the Department of Electrical Engineering (members of the research team: Jun-Rong Wu, Chia-Jui Yang, & Yan-Ting Lin). This technology integrated the light emitted by the sensor with AI technique to identify the source of the light fingerprint. The mobile phone light served as the target during the exhibition and the lights from several mobile phones with the same model number were recognized successfully. The learning model of Autoencoder could efficiently exclude those mobile phones whose model numbers were not in the database. Compared with other burglarproof devices, light is characterized with duplication and decoding difficulty; in other words, its high security is suitable for environments with demanding safety requirements.

The **third** project was Electrosynthesis of Copolymer based on 2,7-bis (carbazol-9-yl))-9,9-ditolylfluorene, and 2,2'-bithiophene for a High Optical Contrast Smart Window developed by Mr. Tzi-Yi Wu of the Department of Chemical and Materials Engineering (members of the research team: Chung-Wen Kuo, Li-Kai Yao, Chia-Yu Hsu, Wen-Ling Chen, & Yi-Cheng Li). This electrochromic glass works for people who turn disagreeable suddenly. A diversity of glass colors is revealed merely through voltage switching. Those who are fed up with a certain color simply need to change to their desired color by moving their finger.

LOUKU – Photo of Intelligent Fire Extinguishing System

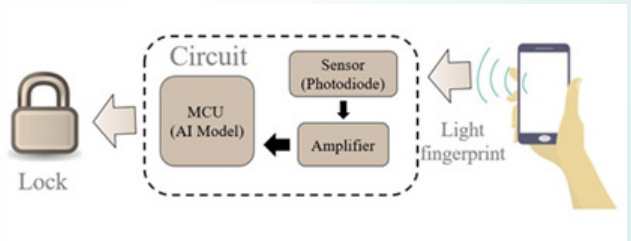

Photo of Mobile Phone Light Fingerprint Identification System

Photo of Electrosynthesis of Copolymer based on 2, 7-bis (carbazol-9-yl))-9, 9-ditolylfluorene, and 2, 2'-bithiophene for a High Optical Contrast Smart Window

Two projects with silver medals

The first project was Multiple Parameters Measurement in a Linear Axis by Fabry-Perot Interferometers developed by Mr. Yung-Cheng Wang of the Department of Mechanical Engineering (members of the research team: Pi-Cheng Tung, Chung-Ping Chang, Fu-Tun Chang, Syuan-Cheng Chang & Tsung-Yu Wu). Instead of applying the structure of a business interferometer, an interferometer calibrating system that could measure displacement, angle, and runout simultaneously was established. To meet various measurement requirements, this system was modularized and divided into a displacement measurement module, straightness measurement module, and angle measurement module. Its strength lay in the fact that customers might choose different inspecting modules for measurement to cope with individual industrial needs, which not only enhances the efficiency of the calibration system but also increases measurement precision. The laser interferometer belongs to a high resolution inspection equipment and can be applied to machine tools, inspection of semiconductor facilities, and panel process inspection.

The second project was Integrated Raindrop Detection and Obstacle Recognition System Application based on Deep Learning developed by Mr. Shih-Chang Sia of the Department of Electronic Engineering (members of the research team: Szu-Hong Wang, Chuan-Yang Hong, Jhe-Ruei Jhang, Ren-You You & Chang-Ching Li). It is a vehicular system that can detect free space on the road in real time. To determine the area in which the vehicle should go precisely, raindrop detection and the obstacle recognition system were integrated into this system. Deep learning influenced recognition with regard to detection of a large area as the major approach to decide the free space zone that could be driven throu

gh as well as to help self-driving or the driving assistance system to decide the next move. Assisted by the structured light, self-emitting and received infrared could judge the flat zone of free space at a short distance.

Besides devotions to academic research, the vision of YunTech is to become an internationally renowned university with the features of innovative teaching and industrial engagement via setting up an environment for R&D on industrial innovation, reinforcing industry-academia cooperation for talent incubation, and value adding of intellectual property.

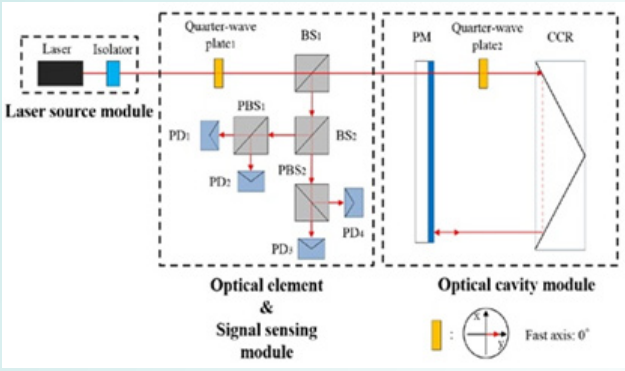

Photo of Multiple Parameters Measurement in a Linear Axis by Fabry-Perot Interferometers

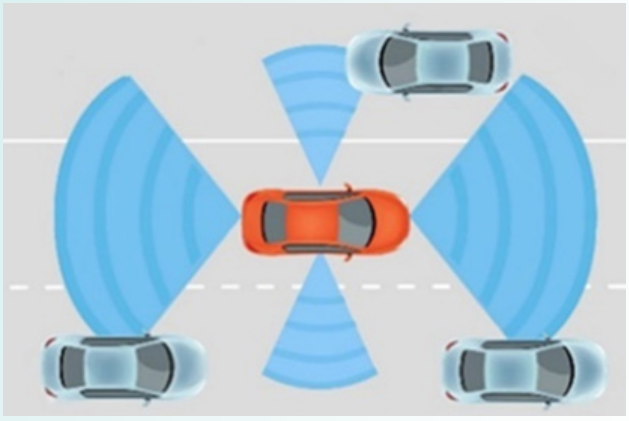

Photo of Integrated Raindrop Detection and Obstacle Recognition System Application Based on Deep Learning

Latest News

The 30th Sports Day for Teachers & Students of YunTech

On the happy occasion of the 30th anniversary of NYUST, various pre-match games were held from the 16th through to the 19th. Teachers and students entered the opening ceremony of the sports day on the 20th. Fang, Guo-Ding, Vice President of YunTech, hosted the opening ceremony for the athletes and plenty of alumni came back to their alma mater to celebrate this event.

Entry Ceremony of Athletes

Faculty and students from the administrative team, departments and graduate schools of the colleges of Engineering, Management, Design, Humanities and Applied Sciences, and Future entered the arena in order on the sports day. The school volleyball and baseball teams presented a great performance for the opening ceremony.

Competition groups were divided into two groups—one for students and another for faculty and staff, and sporting events consisted of track, field, the relay race, the 400-meter walking race for directors, and air cushion gate-crashing. In addition to traditional athletic events, a gate-crashing activity, and tour around YunTech was held for the first time. Players needed to overcome five barricades in order to reach the final barrier of a rock-surfaced air cushion of 6.5 meters high. Team players had to work together to climb to the top and take the slide to get to the finish line. It brought a lot of laughter on the sports day.

The torch entered the arena

Tug-of-war and relay finals for boy and girl students took place on the track field at 2 pm. Participating players did their best and spared no effort to win the relay race. Climaxes came one after another during the events and the arena was filled with a fervent and exciting atmosphere. Students learned the spirit of teamwork and created the best tacit understandings and competitiveness through the contests.

Introduction of MEDESGIN,
Work of Dept. of Digital Media Design (left)
COEXIST = Coral + Exist,
Work of Dept. of Creative Design (right)

Latest News

TRIGGER – 2021 Graduation Joint-Exhibition of the College of Design, YunTech

The College of Design, YunTech held the opening ceremony of 2021 Graduation Joint-Exhibition – TRIGGER and a press conference on Apr. 27. This joint exhibition included the Departments of Industrial Design, Visual Communication Design, Architecture and Interior Design, Digital Media Design and Creative Design and showcased their variety of works and exciting creation capabilities. This 4-day exhibition was the public presentation of the fresh graduates for the first time.

TRIGGER was the main theme for the graduation joint-exhibition of the College of Design of YunTech. Along with the advent of the 5G age, innovation of smartphones and burgeoning social media like Facebook and Twitter, global cultures keep blending and innovating and the human civilization becomes glorious and lustrous as well as uncertain. The idea of the main theme was people might be triggered by anything under unpredictable circumstances and grope for the unknown future. Connecting and interweaving these five different design specialties could motivate diverse inspirations from different aspects so that thinking could be expressed through design and innovation might be communicated.

Mountain Collector,
Work of Dept. of Visual Communication Design (left)
Astronomical Museum,
Work of Dept. of Architecture and Interior Design (right)

The themes of the 5 departments joint exhibition are described below:

Department of Industrial Design – Fab Studio – delicate thinking to fabricate exquisiteness: students focused on details and dedicated themselves to developing special and innovative tools with delicate thinking. They got rid of traditional thoughts and created this hallucinating and unique Fab Studio.

Department of Visual Communication Design - The Lab.Future Construction – keep constructing at the moment to present possibilities for the future: to cope with the advent of the 5G age and the ioT, the Lab.Future Construction paid attention to the rapidly changing world from the angle of an alien observer to construct the future, redefine existing characters, symbols, and signs and make dialogues with extraterrestrial planets. Imagination about the future was explored and possibilities for the future were expanded through design.

Department of Architecture and Interior Design - BEHIND: ME – find the key to self-realization in spatial design: space design involved the process of decoding and recoding; requirements, styles, and environment made up the signals of decoding; whereas, structure, functions and material comprised the encoding procedure. Students could explore the key to self-realization and find out / decode self-value (Behind: Me) in the process of space design.

Department of Digital Media Design – MEDESGIN – the stage is the dream! Passion, persistence and perseverance support the dream: the growth of an idol student from the ignorant phase (practice room) to the independent phase (stage) to serve as an example. Graduation represents the most resplendent stage for a university student as well as the starting point for a new graduate. We all have hopes and dreams and get ready to flex our muscles - MEDESGIN.

Department of Creative Design - LIGHT UP - Be light, make the world bright! Students used their hearts to explore themselves and presented answers to their own questions for self-recognition. Ripple and chain effects took place among them and it took one year for them to say good-bye. No matter what their future might be or whether they would work together or independently, it is expected that each one of them will light up in a certain corner of the world.

These young and cutting-edge designers express their peculiar innovative thinking through design. You will feel their creativity and energy when visiting in person. Welcome to our school to experience a visual feast elaborately prepared by these new-age designers.

Opening Ceremony Group Photo

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