

09

INDUSTRY, INNOVATION AND INFRASTRUCTURE

	2018-2022 Publications	399
	Course Units	967
	Student Engagements with Units on SDG 9	30,653
	2018-2022 Percentage of all Taiwan Publications	6.1%

Research

Innovation Development of Future Technology

The "Future Tech Awards" organized by the National Science and Technology Council, Academia Sinica, Ministry of Education, and Ministry of Health and Welfare focuses on three major themes: semiconductor applications, sustainable green energy, and precision health. In 2022, the competition received 600 submissions, and 81 were selected as award-winning technologies. NYCU had 15 award-winning submissions, the most out of any other institution, which demonstrates the innovative research and development capabilities for future technologies of NYCU teachers and students. Among the award-winning technologies is the project "Enhanced Communication Performance of Smart Commercial Wi-Fi Devices Based on Deep Reinforcement Learning" developed by Associate Professor Chi-Yu Li of the Department of Computer Science. This technology can help networking industries effectively use AI technology to enhance product efficacy and optimize product performance and intelligent services for different users.

Promoting Technology Upgrades in the Semiconductor Industry

The research team lead by Professor Po-Tsun Liu of NYCU's Department of Photonics proposed the world's first quasi-2D amorphous indium tungsten oxide thin film transistors, and developed a complementary inverter technology with low power consumption and low operating bias. The successful development of this thin film transistor with high universality and inverter technology platform will make it possible to integrate optoelectronic/electronic/communication system circuits with different functions into a single chip, breaking through the limitations of IC technology scaling and extending the limit of Moore's law, thus significantly improving chip performance and helping realize the goal of a system on a chip. In addition, it can be implemented in forward-looking optoelectronic/electronic product technologies such as IoT, 5G communications, and AI.

Social Impact

Bio-Navigator Corporate Seminar

The NYCU Global Research & Industry Alliance (GloRIA) organized the "Bio-Navigator Corporate Seminar," inviting representatives from some of the most iconic companies in the international biomedicine industry to speak about their practical experience in business operations, their forward-looking vision, and professional R&D results. Two seminars were held in 2022, titled "Insight into Investors - Venture Capital and Fundraising Skills" and "How to Start a Medical Device Business." These events were not only attended by NYCU faculty members and students, but also prominent figures, experts, and scholars from industry, government, academia, and biomedicine sectors. After the seminars, matchmaking recommendations and return visits from corporations promoted NYCU's R&D capabilities and created opportunities for collaboration.

CIE Training: Creative, Innovative, Entrepreneurship

Smart medicine is seen as a subject full of potential, one that has made outstanding contributions to human society. NYCU's HC Heart CreAction organized the "Smart Medicine CIE Camp," which combined the interdisciplinary expertise of many NYCU professors, including in the field of smart medicine digital system development, industry accelerator and patent development strategy, design thinking, and vision leadership/self-leadership, providing training in creativity, innovation, and entrepreneurship to give high school students an early look at future industry trends and the future development trends of smart medicine.

陽明交通大學智慧醫療×三創營隊

學習創新、創業、創願的三創訓練，並體驗智慧醫療發展趨勢！

2023/2/6(一)~2023/2/9(四)

地點：
台北場—TTA臺灣科技新創基地
新竹場—國立陽明交通大學(博愛校區) 賢齊館

課程內容：
A. 洞悉產業趨勢的「智慧醫療創新」
B. 綜觀創製生聯系統的「創業思維」
C. 涵養「創願核心素養」的HC創願營

主辦單位：國立陽明交通大學(1)智慧醫療數位系統發展中心(2)HC創願領導研究室
協辦單位：財團法人史丹福學術文教基金會 財團法人交大思源基金會

加入社群 立刻報名





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Education & Cultivation

Interdisciplinary Hands-On Courses

Through interdisciplinary hands-on course design, NYCU's Innovative Creative Technology (ICT) Workshop combines the construction of campus laboratory spaces to create more opportunities for interdisciplinary practice and collaborations. The presentation for the 2022 workshop was titled "Open-Labs! Hello, People of the Future," and focused on six major professional fields: IoT, digital manufacturing, robotics, drones, VR/AR and virtual creation. The workshop included a total of 22 courses, 65 presented projects, six feature tours and eight workshops, as well as three guided tours for high school students. Students from Hsinchu Senior High School and Taichung First Senior High School were invited to learn about the features and advantages of NYCU's interdisciplinary practices, experience what college life is like, and better understand the innovative development of emerging fields.

Education & Cultivation

Industry Academia Innovation School

NYCU is the first to establish the Industry Academia Innovation School in accordance with the National Key Fields Industry-University Cooperation and Skilled Personnel Training. The school upholds the connect, collaborate, innovation, co-creation (CCIC) principle. With the goal of sustainable operations, it actively collaborates with leading industry players to create an industry-academia co-creation platform, engaging in top research and accelerating the training of more elite talents for Taiwan's high-tech industries. In the short term, this can alleviate the problem of tech labor shortages, and can cultivate more leadership talents with a global vision and skills in the mid to long term, achieving both talent cultivation and industry-academia co-creation.

Becoming an Entrepreneurial Leader of a New Era

NYCU students independently established the "Innovation and Entrepreneurship Club," which is committed to bridging the gap between theoretical knowledge and applied skills, cultivating a new era of entrepreneurial leaders with innovative thinking and business knowledge, and collaborating with the StarUp talent incubator to match members with internships and internship opportunities. In 2022, the club launched the "Be the Change Training Program," which included five startup courses and a 10-week entrepreneurship competition, in which participants learned about and experienced the process of starting a business from 0 to 0.1. In the end, teams and members with outstanding performances were awarded a NT\$500,000 investment as well as internship opportunities at startup companies.



Stewardship

Global Research & Industry Alliance

NYCU established the Global Research & Industry Alliance (GLORIA-NYCU), which aims to facilitate the industrialization of scientific research results, connecting corporations to fields of research where NYCU excels, such as semi-conductors, ICT, optoelectronics, and BioICT, as well as interdisciplinary, and inter-alliance technology in medicine, mechanical manufacturing, energy, food science, agriculture, and fishery. The alliance engages in diverse forms of collaboration, including technology transfers, industry-academia collaboration, joint R&D, linking strategic partners or customers, or developing new industry needs, promoting forward-looking research results to the greater ecosystem of industry resources. The center also provides customized services to potential startup teams, including domestic and international market promotion, business model planning, fundraising, talent recruitment, etc.

Innovation & Entrepreneurship Competition

To promote a culture of entrepreneurship on campus, the NYCU Center for Industry-Academia Collaboration organizes the annual Innovation & Entrepreneurship Competition, which encourages student teams to commercialize technology and test the market feasibility, thereby driving the development of industry innovation and inspiring young people to have innovative ideas, promoting entrepreneurial practice, and cultivating entrepreneurs.



The competition is divided into two categories: innovative creativity and entrepreneurial ideas. In addition to subsidies, the winning team is also given priority to participate in entrepreneurship training organized by Startup Lab, as well as entrepreneurial consultation services regarding finances, regulations, and patents, to help the team achieve entrepreneurial success.

