CULTIVATING FERTILE FIELDS FOR ACADEMIC ACHIEVEMENTS

A conversation with **PROFESSOR XIAOHONG YAN**, President, Jiangsu University (JSU)

The confluence of diverse culture and talent has brought a rich history to the city of Zhenjiang in Jiangsu province, home to JSU. Hosting world-class infrastructure at its affiliated institutes and hospitals, the JSU campus has embodied this tradition of intellectual exchange to become a global hub for cross-disciplinary collaboration. JSU president, Xiaohong Yan, explains his formula for success in talent incubation, academic development, and scientific achievements with global influence.

How has JSU's history contributed to its academic growth?

JSU's pedagogical heritage can be traced back to the Sanjiang Normal College founded in 1902. The college was the first in China to have systematically developed academic programmes for agriculture. A series of national recognition followed: we became one of the 88 key universities in the country appointed by the State Council in 1978, and one of the first universities in China entitled to grant doctorate and masters degrees in 1981.

Figures from 2020 have demonstrated our continually improving standing. Our university ranked the 38th in China according to the Chinese Academy of Management Sciences, 301-400 category according to the Academic Ranking of World Universities (ARWU), and the 631st globally according to the Essential Science Indicators (ESI) ranking.

What are some of JSU's most exemplary studies?

We have advanced the global frontiers of scientific, technological, and industrial development with our new discoveries in materials, energy and life sciences. We also have national key disciplines in various branches of engineering studies, including fluid machinery, mechanical manufacturing, and automation.

Success in these fields has led to cross-disciplinary achievements in biomedicine, precision medicine, and minimal invasive surgery, exemplified by our recent breakthrough in electrochemically powered artificial muscles. Featured in a *Science* paper in 2021, a faster, more powerful and more energy-efficient design made from twisted carbon nanotubes and their conductive polymer coating was presented by Professor Xinghao Hu at our Institute of Intelligent Flexible Mechatronics.

Our team at the Collaborative Innovation Center of Photovoltaic Science and Engineering, led by a mechanical engineering professor, Jianning Ding, was also renowned for proposing a crystalline silicon solar cell, which offers an efficient and low-cost alternative to the standard Passivated Emitter and Rear Cell (PERC) solar cell architecture.

How about JSU's long-standing academic focus on agriculture?

As a university run jointly by the Ministry of Education, the Ministry of Agriculture and Rural Affairs, and the Jiangsu Provincial People's Government, we have a strong tradition in agricultural machinery. We have consistently ranked top nationally for our agricultural engineering studies, with national key disciplines such as agricultural electrification and automation.

The 2018 China Patent Gold Award, co-organized by the World Intellectual Property Organization and China National Intellectual Property Administration, was presented to the creators of a patented combined harvester design, Professors Yaoming Li and Lizhang Xu, from the School of Agricultural Engineering. Raw rice and wheat grains can, through his design, be processed with greater efficiency from reaping, threshing to separating with lower water content and grass-to-grain ratio.

Professor Xiaobo Zou, dean of the School of Food and Biological Engineering, has led a study into the intelligent processing of specialty food and agricultural products in China, supported by national and provincial funding programmes, as well as food businesses. It focused on various aspects of food production such as the intelligent quality control and grading of cured meat, as well as the automated production and cloud-based processing for solid-state fermentation of vinegar.

What is unique about JSU's research platforms for original innovations?

All of our research platforms are geared towards national growth and industry development. Our National Research Center of Pumps and Pumping System Engineering and Technology launched new designs from sprinkler irrigation pumps to submersible centrifugal pump for the marine and offshore industries. The centre has won seven National Science and Technology Progress Awards and published more than 100 guides for industry standard.

Our Automotive Engineering Research Institute has dedicated laboratories focusing on key technologies of hybrid vehicles: Automatic Vehicle Location (AVL), battery design, geolocation fatigue test, chassis integration for the final assembly, and noise vibration harshness, which measures and modifies the noise and vibration characteristics of hybrid vehicles.

What is your vision for talent development and future blueprint?

Shaping the future of JSU are core strategic growth areas, including talent, academic quality, innovation, international collaboration and cultural leadership. Apart from exchange programmes, we have been organizing high-profile international academic forums in the past five years with renowned institutes from more than 50 countries and regions with students joining on-site or online from Harvard University, the University of Tokyo and other top institutions in the world.

We welcome talent worldwide with a focus on high-end innovation, youth, teamwork, and internationalization. Our platforms for growth and development have been helping young scholars advance their careers.

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BRINGING ON THE FRUITS OF SUCCESS

Promoting faculty and student diversity

- **27** colleges offering **97** undergraduate majors
- **>40,000** students, including **>13,000** postgraduates and **>3,000** international students
- **>3,000** international students from **116** countries and regions, whose number reaches **the top 30** universities in China and **the first** in Jiangsu Province
- **>2,700** full-time teachers, **37%** of whom have more than one year of overseas experience, and **71%** of teachers with senior professional titles

Fostering international exchange

- Partnership with **206 colleges and universities in 54 countries and regions** including the United States, the United Kingdom, Germany, Canada, Brazil, Zambia, Ghana
- **14** joint training projects with top universities including University of Liverpool (United Kingdom), Arcadia University (the United States) and the University of Queensland (Australia)
- Leading the establishment of the International University Consortium for Agricultural Engineering and the International Cooperation Alliances on Agricultural Equipment

Top ranks and awards

- **Essential Science Indicators (ESI):**
  9 subjects listed among the top 1% in the world: engineering, materials science, clinical medicine, chemistry, agricultural science, pharmacology and toxicology, biology and biochemistry, environmental ecology, molecular biology and genetics
- **Times Higher Education's China Subject Ratings 2021:**
  25 subjects included and 13 rated A, with optical engineering, instrument science and technology, materials science and engineering, and metallurgical engineering rated A+
- **Academic Rankings of World Universities:**
  15 first-class subjects and **2** subjects among the top 50 in the world: food science and engineering, and chemical engineering
- **16 State Science and Technology Awards (2007—2020), and other awards (2010—2020):**
  138 Jiangsu Science and Technology Awards
  58 Ministry of Education awards
  112 awards from China Machinery Industry Federation

Amplifying research impact with greater investments