Childhood Curiosity Sparks Energy Quest

China Impression

By YIN Wei & LONG Yun

Growing up in the remote village of Dera Ghazi Khan in southern Punjab, Pakistan, Muhammad Sarfraz faced frequent power outages due to dust storms and winds. "From an early age, I was curious about the world beyond my hometown and fascinated by how technology could improve everyday life," he recalls. "I often wondered if there was a more affordable and convenient solution to provide consistent power to these remote communities."

Driven by his curiosity, Sarfraz's academic journey began in Pakistan, where he earned a bachelor's degree in electrical engineering from Sukkur Institute of Business Administration University in 2016. Eager to apply his skills, he spent two years working for a government department in Lahore, developing and maintaining an Integrated Command, Control, and Communications (IC3) system. "This work was valuable," he said, "but it did not fully satisfy my desire to deepen my technical skills and gain advanced knowledge related to my field of interest."

Turning to China, which he said is seen as Pakistan's friendly neighboring country known for its rapid technological development and research opportunities, he completed a master's degree in electrical and automation engineering at North China Electric Power University in Beijing. There, he researched renewable energy forecasting, discovering AI's potential. "AI is revolutionizing how energy systems are integrated, planned and controlled, enabling predictive insights such as estimating remaining useful life, which relates to my work on battery health assessment and lifespan prediction," he explained.

This led him to Tianjin University (TJU) for his doctorate, drawn by its "academic excellence, supportive environment for international students, strong career prospects, and global recognition in research and development." As China's first modern university, TJU embodied a legacy of innovation that mirrored Sarfraz's own aspirations. "Its forward-looking research culture and focus on cutting-edge technologies make it an ideal place for innovation and personal growth," he said.

Life as a doctoral candidate at TJU is a harmonious blend of intellect and exploration. His routine includes lab work on simulations, AI model training, and battery data analysis for AI applications in energy systems, specifically the prediction and optimization of renewable energy storage in urban systems. This research supports China's green energy initiatives and addresses power challenges in developing regions.

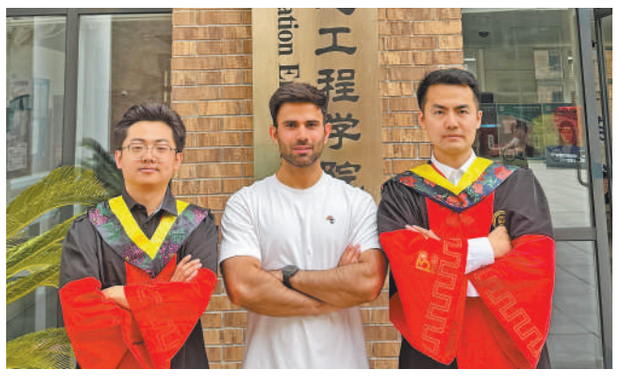
Weekends offer a chance to immerse in Tianjin's unique East-West blend. "I enjoy walking along the Haihe River, exploring the Wudadao area, enjoying local street food, or visiting cultural landmarks that showcase the city's unique fusion — from Italian-style streets to French-inspired architecture," Sarfraz said. These outings aren't mere distractions; they fuel his creativity, reminding him how diverse perspectives can spark innovation.

As a Pakistani scholar, Sarfraz sees Tianjin's fusion mirroring the Shanghai Cooperation Organization (SCO) summit aim of "cooperation without losing identity." Like the city's blend of traditions and architecture, the SCO fosters diversity for shared goals in regional security, economic cooperation, trade, technology, sustainability and cultural exchange. It also opens doors for joint research projects, innovations in green energy, and cross-border student exchanges, areas in which TJU leads.

Studying at TJU has fostered Sarfraz's growth. "It has taught me patience, perseverance, adaptability and global thinking," he said. Rigorous research and cultural bridging have turned his challenges into opportunities for growth, collaboration and cross-cultural learning.

Looking ahead, Sarfraz plans to continue in academia and research, focusing on sustainable energy systems and battery technologies. After completing his doctorate, he envisions a post-doctoral position or role at a Chinese R&D institute for a few years to apply what he has learned. Long-term, he looks forward to maintaining ties with China through joint research projects, visiting professorships, or technology transfer initiatives between Pakistan and China.

His ultimate goal is to bring AI-driven solutions back to Pakistan, perhaps improving everyday life in those remote communities that first sparked his curiosity.



Muhammad Sarfraz (middle) and his classmates. (COURTESY PHOTO)

Vibrant China

Hubei's Tech Innovation Boosts Consumer Market

By Staff Reporters

Hubei has experienced significant development in recent years, with technological innovations playing a vital role in enhancing the province's consumer market.

Cities such as Wuhan, Ezhou and Qianjiang are becoming important hubs for this transformation, where advancements in various sectors, including agriculture, logistics and e-commerce, are contributing to economic expansion and changing consumer behavior.

In Qianjiang, known as the "hometown of Chinese crayfish," a new farming model has addressed the seasonal limitations of crayfish production. The "four-season crayfish" technique, which utilizes zoned cultivation in U-shaped ponds, enables year-round production, with consistent supply, even in winter.

This innovation has led to higher yields, with some farms reporting up to 100 kg per 4,046 sq meter per season.

The ability to harvest larger crayfish during traditionally low-demand periods has enabled the industry to tap into new markets and maintain sales during peak seasons, such as the Chinese New Year.

The Huahu International Airport in Ezhou has become a key player in air freight logistics, handling imports of fresh seafood products like crabs and shrimps. The efficient customs clearance system ensures that goods are processed and delivered within hours of arrival, improving logistics speed and reducing operational costs.

The China (Ezhou) Cross-border E-commerce Industrial Park, which began operation in April 2025, has seen rapid growth, combining improved logistics with cross-border trade. With its new framework for regional economic development, Ezhou has become a growing center for international commerce, with over 250 registered companies in the industrial park alone.

Wuhan boasts a rising number of startups. The Wuhan Institute of Industrial Innovation and Development provides early-stage companies with funding and strategic business connections. The Hubei Wuchuang Hangyou Intelligent Technology Co., is one of the startups that have benefited from this support.

This model has made local startups expand rapidly, highlighting the importance of effective commercialization and resource integration to foster business growth.

Overall, these innovations in agriculture, logistics and e-commerce are contributing to the growth of Hubei's consumer market, indicating how technological advancements can influence and expand regional economies.

China and Arab Nations Build Technology Cooperation Bridge

International Cooperation

By SUN Jin

Themed "Innovation, Green Development and Prosperity," the 7th China-Arab States Expo, recently held in Yinchuan, northwest China's Ningxia Hui autonomous region, witnessed deepened cooperation between China and Arab states in sectors such as artificial intelligence and clean energy.

During the expo, the China-Arab States Technology Transfer Center released 500 advanced and applicable technologies for Arab countries.

These are system-level solutions that can be rapidly deployed, scaled up, and promoted across regions, covering six key sectors including green agriculture, ecological conservation, environmental protection, high-end equipment, and intelligent manufacturing.

Critically, these innovations address challenges in Arab nations, including food security, desertification control, and industrial upgrading.

According to Luo Xiwen, an academician of the Chinese Academy of Engineering, China's practical experience demonstrates how smart agriculture boosts labor productivity, and enhances input-output efficiency and resource utilization. He emphasized that sharing these advancements would enhance future cooperation.

Since 2015, the expo has introduced over 1,300 advanced technologies, facilitated the signing of 109 technology cooperation agreements. It has organized 24 sessions of international technical training programs, and trained over 1,000 skilled professionals for Arab countries.It has become an important platform for the Belt and Road Initiative sci-tech cooperation between China and Arab states.

Since the China-Arab States Technology Transfer Center was launched, there has been robust sci-tech cooperation between both sides, anchored in mutual commitment and trust.

Chen Fang, deputy director of the Ningxia Department of Science and Technology, said in the future, Ningxia would leverage the expo's permanent venue to build it into a technology transfer hub for Arab nations and an innovation cooperation demonstration zone, contributing Ningxia's solutions to building a China-Arab community with a shared future.

Ancient 'Computerized' Loom Changed Weaving

By BI Weizi

Invented in the Shang Dynasty, the ancient Chinese jacquard loom is a textile machine that can store "pattern information." When weaving patterned textiles, the jacquard mechanism stores this information for reuse, in a manner similar to computer programming. This invention is considered a significant milestone in the history of textile technology worldwide.

Before the jacquard loom was invented, patterns had to be created using pick-weaving. There are two methods of pick-weaving: picking and weaving one weft or one loop at a time. Neither method allowed for the storage and reuse of "pick-weave information." Even repeating patterns required re-picking, which was time-consuming and labor intensive. Therefore, the flower-based jacquard loom was invented.

This is a specific application of the standard jacquard loom, where the woven pattern is controlled by punch cards to create designs resembling flowers, leaves, and other complex floral motifs directly within the fabric itself, rather than printing them on top. Its core function is to programmatically control the interweaving of warp and weft threads, achieving precise interweaving and producing silk fabrics with complex patterns.

The jacquard loom enabled textiles to evolve from single color or simple geometric patterns, to complex, realistic designs such as cloud patterns, dragons, phoenixes, flowers and birds. This greatly enhanced the artistic value of silk and other fabrics. The invention promoted the prosperity of Chinese silk culture, having a profound impact on the development of textile technology globally.

Jacquard loom technology spread westwards along the Silk Road. In the sixth century, Persian merchants introduced jacquard looms to Persia. By the 12th century, silk weaving workshops imitating Chinese jacquard looms had emerged in Lucca, Venice and other Italian cities.

The jacquard loom is a remarkable piece of machinery that not only serves as a weaving tool, but also as a testament to ancient programming and mechanical ingenuity. It transformed Chinese silk into a globally recognized luxury product and influenced the cultural symbolism of the "Silk Country."

A replica of a jacquard loom unearthed from the Han Dynasty tomb is on display at the China Museum Collection Cultural Heritage Protection Achievements Exhibition in Beijing. (PHOTO: XINHUA)

Qingdao Emerges as Livable International City

By LIANG Yilian

Qingdao, a major port city in Shandong province in east China by the Yellow Sea, is rapidly emerging as a hub of internationalization, innovation and quality life.

From its thriving industries and cutting-edge design firms to its world-class healthcare and education services, Qingdao is crafting a new identity as a dynamic, livable and welcoming global metropolis.

Innovation fuels industrial leap

Qingdao has consistently ranked among China's top cities for talent attraction. It has been among the "*Top 10 Most Attractive Chinese Cities in the Eyes of Foreign Talents*" for consecutive years.

An example of this innovation momentum is the Decai Group, ranked second in China's architectural decoration industry, with over 900 patents for inventions and utility models. The company also holds 88 professional qualifications and has a strong emphasis on R&D and technological advancement.

Decai's international design team includes Italian architects who have found both professional fulfillment and lifestyle satisfaction in Qingdao.

"I came to China because I felt it would bring new opportunities. Projects here are often more complex and creatively engaging," said Paolo Frizzo, a 33-year-old Italian designer. "For each project, we conduct extensive research and try to add our unique creative touch."

A distant view of the Qingdao Olympic Sailing Center, August 24, 2024. (PHOTO: XINHUA)

Services to make life easy for expats

Behind Qingdao's growing global appeal is a strong foundation of services that supports the needs of foreign residents — especially in healthcare and education.

The Qingdao Municipal Hospital, founded in 1916, launched an international outpatient service in 2003 to cater specifically to foreign patients. The multilingual medical team — including professionals fluent in English, Korean, Japanese and Chinese — ensures smooth communication and high-quality care.

With China's visa-free transit policy in effect, the number of international visitors has surged. From January to June 2025, the Qingdao Jiaodong International Airport welcomed 240,000 foreign passengers, a 46 percent year-on-year increase. The surge has created a greater demand for medical services.

"During the Labor Day holiday (in May), we treated several foreign tourists from South Korea and Japan. One patient had acute myocardial infarction. Thanks to a timely emergency procedure, he was safely discharged and returned home before the holiday ended," said Shi Yue, director of the hospital's International Outpatient Service.

On the education front, Qingdao stands out nationally in terms of resources for expatriate families. The International School of Qingdao (ISQ), a vibrant community school offering education from kindergarten to 12th grade, exemplifies this commitment.

"Foreign children want to learn English in a global context, but they also love China. That's why we teach the Chinese language and culture as well — it's a good mix," said Gabe Lee, principal of ISQ.

Living by mountains and the sea

Qingdao is often referred to as a "hidden gem" for its coastal charm, mild climate and livability. For many foreign residents, life here provides a balance rarely found in large cities.

"Living and working here has changed me. I have more time to explore nature with my family — whether it's hiking, visiting beaches, or biking along rivers," said Ben Bowser, team director at ISQ. "Plus it's a very safe city, which is a huge factor for families."

Approachable Qingdao helps foreigners adapt with ease. "There's a comfort here that foreigners might not find in other cities. The food is mild, the seafood is great, and overall, it's easy to integrate into life here," said Colleen Quernemoen, elementary principal at ISQ.

Embracing the world

Qingdao continues to invest in international infrastructure and community development, which has enhanced its appeal to global professionals and their families. Nearly 40 percent of all foreign-invested enterprises in Shandong are based in Qingdao. A total of 179 Fortune Global 500 companies have invested in 412 major projects in the city.

"There's real potential for positive economic change here," said Stephen James O'Connor, principal at the Yew Chung International School of Qingdao.