

GLOBAL INSTITUTE OF FUTURE TECHNOLOGY

海  
峽

## Contact Us

East Wing, Yue-Kong Pao Library, 800 Dongchuan Rd.,  
Shanghai Jiao Tong University, Minhang District, Shanghai, China  
021-54741175  
[gift.sjtu.edu.cn](http://gift.sjtu.edu.cn)



Official WeChat



Official Website



上海交通大學  
SHANGHAI JIAO TONG UNIVERSITY



滬淵未來技術學院  
GLOBAL INSTITUTE OF FUTURE TECHNOLOGY

# CONTENTS

- 02 Dean's Message
- 03 GIFT Overview
- 05 Organizational Structure
- 07 Features of GIFT
- 09 GIFT Milestones
- 11 Study at GIFT
- 21 Research
- 27 Cooperative Development
- 29 Moments of GIFT
- 31 Future Vision
- 33 Support Us

## Dean's Message



Jun Ni

Dean, Global Institute of Future Technology (GIFT),  
Shanghai Jiao Tong University ;  
Chief Manufacturing Officer, CATL

Amid a rapidly transforming global landscape and the accelerating wave of technological and industrial revolutions, the Global Institute of Future Technology (GIFT) at Shanghai Jiao Tong University was officially launched in August 2021. Established to meet the rising demand for innovation in the intelligent era, GIFT inherits the university's tradition of academic excellence, strong foundations, rigorous standards, hands-on learning, and a spirit of innovation. GIFT was founded on a clear mission: to anticipate global technological trends, identify breakthroughs in strategic emerging industries, and understand the competencies required of future leaders. With this vision, the Institute is pioneering a new integrated model of education, research, and talent development—one that aligns with the evolving demands of a future driven world.

Scientific breakthroughs of the future will depend increasingly on cross-disciplinary innovations. Likewise, tomorrow's industry leaders must master the ability to navigate and synthesize knowledge across multiple domains. Leveraging the university's strengths across diverse disciplines, GIFT is strategically focused on two grand challenges—the health of the planet and the health of people. With this in mind, the Institute has established two flagship areas: Future Energy and Future Health. These programs are designed to foster wide-ranging interdisciplinary research and education, promoting transformative advances in core technologies and generating original, high-impact results. GIFT aims to become a leading hub where academia and industry collaborate seamlessly to drive innovation.

The institute attracts top global talents, forming a leading faculty with international backgrounds and professional experience. GIFT offers students diverse opportunities for practical engagement and global exchange, cultivating open mindedness and global perspectives. By integrating high-quality resources, the institute explores new models of collaboration among academia, industry, and research, providing strong support for cultivating strategic leaders in science and technology.

With a pioneering spirit and a commitment to breaking new ground, GIFT is set to become a force for educational reform and innovation. The new GIFT campus building, scheduled for completion in 2027, will stand alongside the Future Energy Research Institute of CATL to form a "Twin-Tower" innovation hub—an integrated ecosystem of education, research, and talent cultivation.

GIFT stands ready to lead with purpose and vision. Together, we will reach new heights and shape a bold, bright future for the Global Institute of Future Technology.



# GIFT Overview

A new wave of technological revolution-driven by advances in renewable energy, artificial intelligence, and life sciences-is profoundly reshaping human life and societal progress. These progress advocate for a coordinated strategy integrating education, technology, and talent development. The Global Institute of Future Technology (GIFT) at Shanghai Jiao Tong University (SJTU) is one of the first 12 Future Technology Institutes recognized by the Ministry of Education and was officially established in August 2021. GIFT is the first in the country to launch two new undergraduate programs in “Sustainable Energy” and “Health Science and Technology.” It has built a student-centered, excellence-driven education framework across undergraduate, master, and doctoral levels.

The institute collaborates closely with SJTU’s traditional strengths in science, engineering, biomedical sciences, and management, working to establish large-scale, interdisciplinary research centers, and promoting an innovative model to accelerate technology commercialization. This provides the innovation engine, talent foundation, and transformation pathway to foster new productive forces and advance economic and social development. The institute’s motto is: “Profound in Knowledge, Progressive with the Times.” “Profound in Knowledge” originates from The Doctrine of the Mean, symbolizing depth of wisdom and cultural inclusiveness. “Progressive with the Times” is drawn from SJTU’s sundial inscription, reflecting a commitment to excellence and adaptability in a changing world. The institute is named the Global Institute of Future Technology (GIFT), symbolizing a dedicated faculty cultivating gifted individuals with care and vision. GIFT is committed to breaking boundaries in learning, disciplines, and institutions, and to building a globally influential, China-rooted model of industry-education integration. Its mission is to nurture strategic, globally-minded leaders for future industries.



# Organizational Structure

## Governance Leaders



**Kuiling Ding**

President of SJTU, Academician of the Chinese Academy of Sciences



**Lifeng Xi**

Executive Vice President of SJTU



**Xinghao Jiang**

Vice President of SJTU

## Honorary Deans



**Robin Zeng**

Chairman and CEO of CATL, member of SJTU board of trustees, and Honorary Dean of Global Institute of Future Technology



**Guang Ning**

President of Ruijin Hospital affiliated to SJTU School of Medicine, Honorary Dean of Global Institute of Future Technology, Academician of the Chinese Academy of Engineering

## Administration Leaders



**Jun Ni**

Dean  
Deputy Director of the Academic Affairs Committee of SJTU,  
Distinguished Advisor to the President of SJTU



**Tianshu Ge**

Chairperson of GIFT Council



**Sun Jin**

Executive Dean



**Haibo Han**

Deputy Chairperson of GIFT Council



**Jingchuan Wang**

Associate Dean



**Weiliang Xia**

Associate Dean



**Hua Bao**

Associate Dean

# Features of GIFT

<div>Research</div> <div></div>	<div>13 Interdisciplinary Research Centers</div> <div>Dedicated to fostering large-scale, cross-disciplinary innovation across fields.</div>
<div>GIFT Distinguished Lecture Series</div> <div></div>	<div>GIFT hosts an academic lecture series featuring leading global scholars and industry pioneers across fields, such as energy, education, and healthcare. The series serves as a dynamic platform to promote interdisciplinary dialogue, broaden academic perspectives, and inspire innovative thinking among faculty and students.</div>

# Features of GIFT

<div>Academics</div> <div></div>	<div>2 pioneering undergraduate programs approved by the Ministry of Education</div> <div>Sustainable Energy and Health Science and Technology</div> <div>MD+PhD Dual Doctoral Degree Program</div> <div>GIFT Future Scholars Program</div> <div>Five 100%s</div> <div><div><div>100%</div><div>undergraduate students being assigned personal academic mentors</div></div><div><div>100%</div><div>access to international exchange opportunities</div></div><div><div>100%</div><div>focus on leadership development</div></div><div><div>100%</div><div>participation in real-world corporate practice and research</div></div><div><div>100%</div><div>eligibility for scholarships and financial aid</div></div></div>
---	---



# GIFT Milestones

## 2020

- Oct. 12 - Shanghai Jiao Tong University and Contemporary Amperex Technology Co., Limited (CATL) signed a cooperation agreement to jointly establish the Joint Research Center for Clean Energy Technologies

## 2022

- Feb. 27 - GIFT hosted the Future Development Forum on Health Science and Technology.
- Nov. 1 - The Xishan Practice Base in Wuxi, Jiangsu Province, was officially launched.
- Nov. 27 - Vice Minister of Education Tiehui Weng attended the Launch Ceremony held by GIFT for Industry-Education-Research-Application Strategic Cooperation.



## 2024

- Mar. 7 - The Health Science and Technology undergraduate program received formal approval.
- Apr. 13 - The groundbreaking ceremony for the GIFT building was successfully held.
- July 25 - Dean Jun Ni delivered a keynote address at the Ministry of Education's conference on the development of Future Technology Institutes.



## 2021

- Apr. 10 - Dr. Robin Zeng was appointed the member of the SJTU Board of Trustees and donated to establish the Yuqun Zeng Education Foundation.



- Aug. 19 - Official inauguration of the Global Institute of Future Technology (GIFT).



- Dec. 10 - The Sustainable Energy undergraduate program was officially approved by the Ministry of Education.

## 2023

- Feb. 16 - Vice Minister of Education Yan Wu visited GIFT to review its development progress.
- Feb. 26 - The GIFT Future Scholars Program was officially launched.
- May 5 - GIFT's temporary teaching and research space in the east wing of the Yue-Kong Pao Library was opened.
- July 5 - Academician Bo Zhang, Honorary Director of the Tsinghua Institute for AI, delivered the inaugural lecture of the GIFT Distinguished Lecture Series.
- Sept. 9 - GIFT held its first opening ceremony for incoming students at the Yue-Kong Pao Library auditorium.
- Dec. 15 - SJTU and CATL renewed their strategic cooperation agreement.



## 2025

- Apr. 17 - China's first "MD+PhD" Dual Doctoral Degree Program in medical-engineering integration officially launched.
- Aug. 19 - GIFT 4th Anniversary Strategic Development Retreat held.



- Sept. 2 - GIFT and the Faculty of Engineering of the University of Hong Kong signed the inaugural Bachelor's to PhD joint cultivation cooperation agreement.



- Oct. 27 - GIFT and the Faculty of Engineering of the University of Waterloo signed the inaugural 3+1+1 Bachelor's to Master's joint cultivation cooperation agreement.



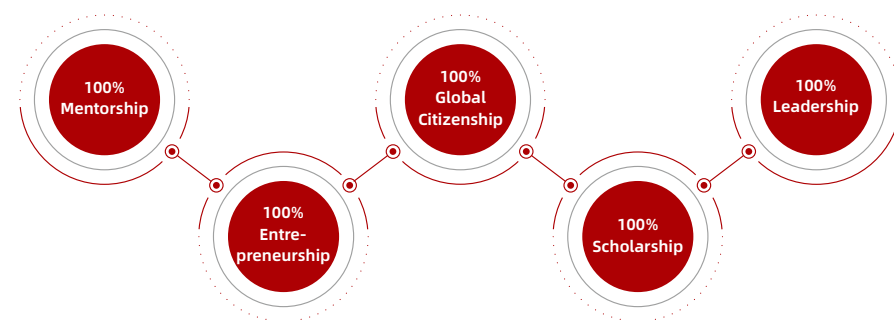
# Study at GIFT



## Undergraduate Education Overview

The Global Institute of Future Technology (GIFT) offers two undergraduate programs: Sustainable Energy (SE) and Health Science and Technology (HST). Designed to address the critical demands of revolutionary advancements in future energy and future health, our undergraduate and graduate programs feature experiential engineering education, transcending traditional disciplinary boundaries and promoting personalized, interest-driven learning. We instill in our students the capacity to conduct independent research and communicate cross-culturally, while equipping them with the strategic insight and global proficiency required to be leaders in their own chosen fields.

The institute continually refines its educational philosophy, building a coherent cultivation system from undergraduate to doctoral level that emphasizes cross disciplinary problem-solving competencies.



## Fine Granularity

The program's curriculum strengthens foundational sciences in mathematics, physics, chemistry, biology, psychology, etc., while fostering students' logical thinking, humanistic qualities, and well-rounded development.

## Modularization

The curriculum system is divided into five sections: Fundamental Sciences, Interdisciplinary Courses, Humanities and Literacy Courses, Practical Courses and Individualized Courses. Students must complete required credits from each module, ensuring comprehensive intellectual development while allowing for specialization.

## Customization

Designed to be interest-driven, the curriculum offers flexibility in academic pathways and degree awarding. With elective courses spanning various specializations, students enjoy greater autonomy to tailor their studies across disciplines.

## GIFT Talent Cultivation

Curriculum design **focuses** on the following five aspects: **granular curriculum structure, modular design, practice-driven approach, career alignment, and an innovation-centric ethos.** This model aims to cultivate individuals prepared for key roles in:

**Sustainable Energy:** Sustainable Energy Scientist, Energy Systems Architect, Energy Policy Planner, and Energy Sector Entrepreneur

**Health Science and Technology:** Health Technology Architect, Healthcare Device Innovator, Health Policy Maker, Health Sector Scientist, and Medical-Engineering Integration Leader.

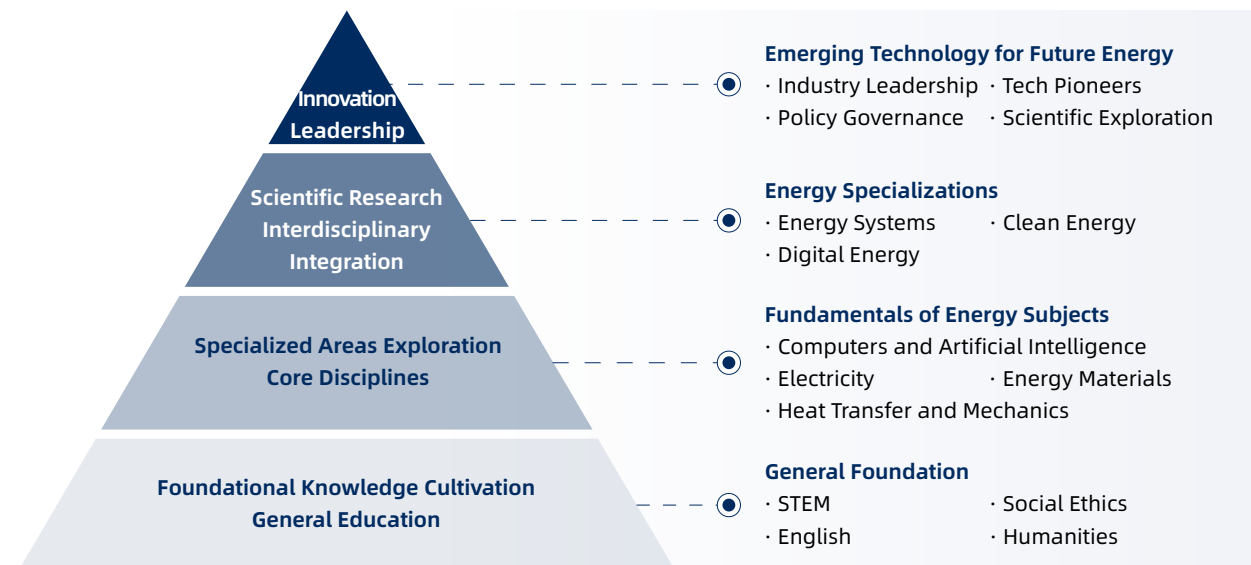




## Program Introduction

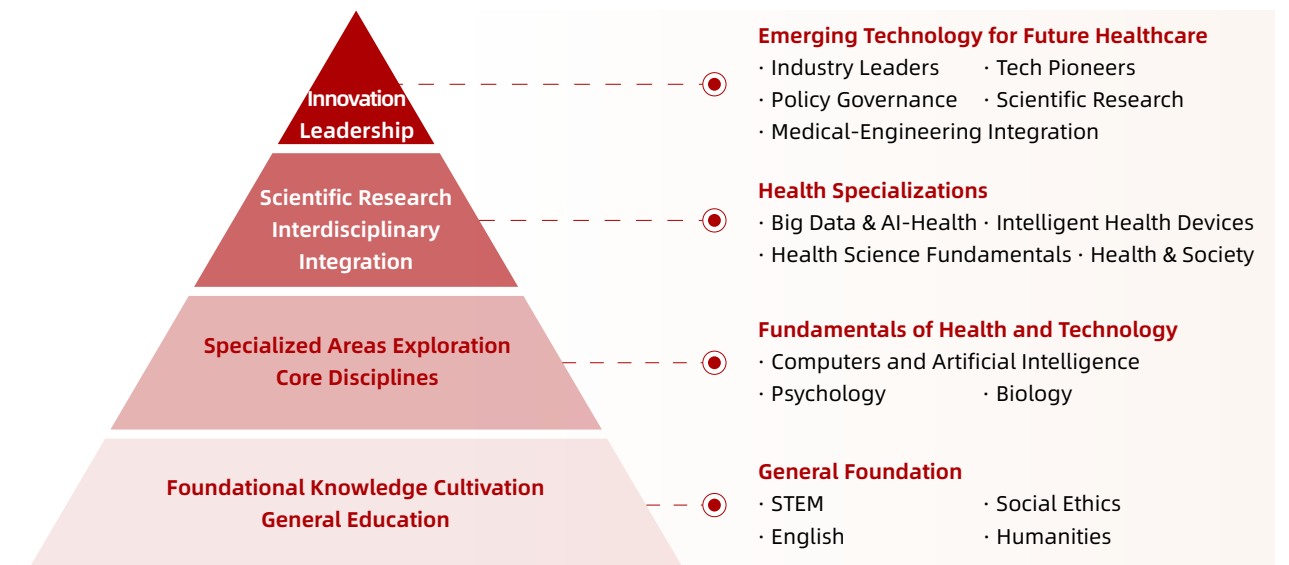
### Sustainable Energy (SE)

With the core feature of 'Artificial Intelligence + Sustainable Energy', the program is geared towards the needs of developing new productivity in sustainable energy. By integrating the knowledge of information technology, sustainable energy engineering, mechanical engineering, computer science, electrical & electronic engineering, materials engineering and other disciplines, the program prepares students to become leaders in energy science research, policy-making, system planning, digital energy design and other emerging energy industries.



### Health Science and Technology (HST)

With "Artificial Intelligence + Active Health" as its central focus, the program aims to develop innovative solutions for future health and enhance quality of life. Through the cross-integration of information technology, mechanical engineering, material engineering with biology, psychology, genetics, medicine, the program prepares students to become leaders in emerging future health industries, including cardiovascular and brain health, sports medicine, nutritional health, and environmental wellness.



## GIFT Future Scholars Program

The Global Institute of Future Technology Future Scholars Program is initiated by the Global Institute of Future Technology and is a student leadership development program for undergraduates at Shanghai Jiao Tong University. This program adheres to the core principle of "student-centeredness" and is committed to shaping undergraduates with a research background in future energy and future health technologies through a doctoral-style training approach. Under the guidance of multidisciplinary mentors with diverse professional backgrounds, participating students focus on key scientific and technological challenges, engage in interest-driven project research, attend a series of lectures and social practice activities, and cultivate a strong sense of social responsibility and academic passion.

The program launches a new round of projects every spring and fall semester, inviting faculty members from the mentor pool to propose research topics and allowing students to apply independently at the beginning of each term. It adopts a "one-on-one" mentorship model and encourages interdisciplinary and cross-disciplinary research. Each year, the program supports a group of science and engineering students at Shanghai Jiao Tong University who are dedicated to future energy and future health technologies. Each selected student is assigned a faculty mentor in their specialized field and receives funding to support their academic endeavors, research projects, summer exchange programs, and other related activities.



First Cohort of the Global Institute of Future Technology Future Scholars Program - Group Photo of Faculty and Students



Faculty and Students of the College Travel to Xishan for the "Wisdom Gathering in Xishan, Innovating the Future" Research and Practice Activity



First Cohort of the Global Institute of Future Technology Future Scholars Program - Summary Conference and Launch Ceremony of the Second Cohort

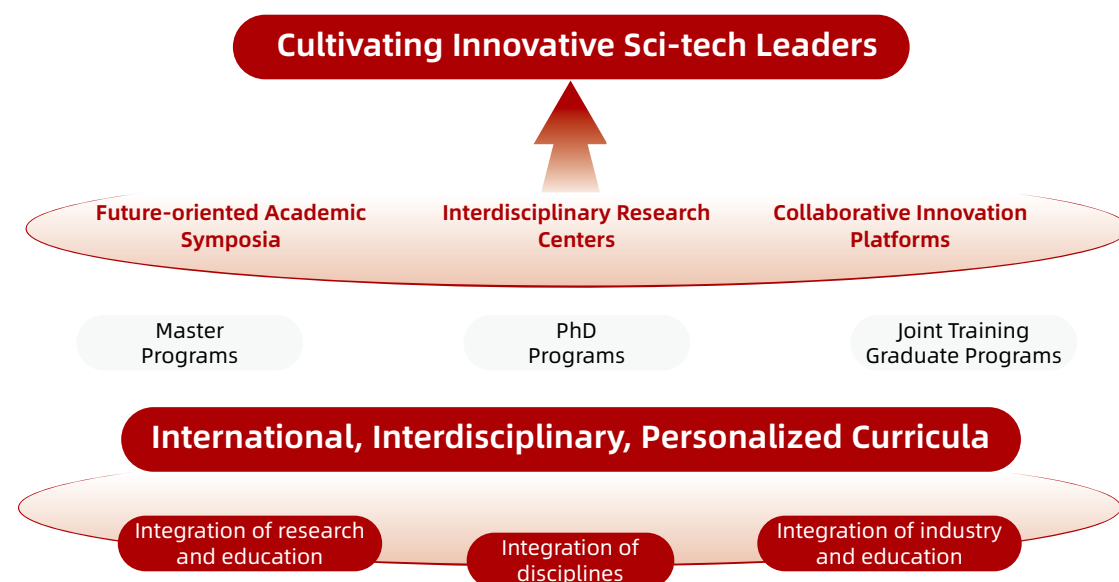


# Graduate Education

## Overview

GIFT pioneers a comprehensive reform initiative to establish an innovative education system that transcends the boundaries between learning, disciplines, and universities. GIFT graduate programs are designed to cultivate visionary leaders who are devoted to achieving breakthroughs in key and cutting-edge technologies in the fields of future energy and future health. The unique educational experience prepares students to assume leadership roles in the realm of technological and industrial advancement.

GIFT provides a collaborative environment for advanced study, enabling students, faculty, and industry partners to work together to extend the frontiers of knowledge. Graduate education at GIFT places particular emphasis on the relevance of science and technology to the complex problems facing industry and society. We blur the boundaries between disciplines as we seek to solve complex problems, requiring expertise in several different areas.



## Features

- Student-centered education with dynamic and open academic atmosphere
- Capability-oriented cultivation with continuous improvement
- Interdisciplinary, collaborative and innovative culture
- Inquiry-driven learning incorporating industry-education synergies
- World-class innovation hub through global collaboration



## Graduate Programs

GIFT is committed to maintaining the highest standards of integrity and intellectual and creative excellence. With its diverse interdisciplinary platforms, extensive industrial connections, and comprehensive collaboration mechanisms, GIFT offers a number of interdisciplinary full-time graduate degrees. Part-time graduate programs are also available.

## Joint Training Graduate Programs

GIFT offers joint training graduate programs based on its close relationship with industries. By leveraging the strengths of hospitals, enterprises, and universities, we have established industry-academia-research collaboration platforms, upon which several joint training programs have been established, such as the "CATL Joint Training Program" and "United Imaging Joint Training Program". In partnership with these enterprises, graduate students are expected to conduct cutting-edge scientific research and tackle technological challenges.

## Admissions for Full-time Programs

Graduate programs are open to applicants from a variety of disciplines, including Mechanical Engineering, Electrical Engineering, Materials Science and Engineering, Power Engineering, Computer Science, Biomedical Engineering, Mathematics, Physics, Chemistry, and Biology, etc.

## Part-time Programs

GIFT enrolls part-time doctoral degree students in the field of engineering. These programs are designed to meet the needs of national development strategies.

GIFT has established strong partnerships with leading enterprises, particularly in energy and healthcare sectors, such as CATL and United Imaging. We warmly welcome applicants from partner enterprises.

# MD+PhD Dual Doctoral Degree Program

GIFT introduces a MD+PhD Dual Doctoral Degree Program in collaboration with Shanghai Jiao Tong University School of Medicine. Focusing on the convergence of engineering and medicine, this program is designed to cultivate transformative leaders for the advancement of healthcare with global impact.

The program consists of undergraduate studies (Bachelor of Engineering in Health Science and Technology), and graduate studies (a MD degree and a PhD degree). Subsequent to their sophomore year, undergraduate students in Health Science and Technology program may transition to the pre-medical curriculum. This program aims to provide students with a robust foundation in engineering, medicine and interdisciplinary abilities. It provides cross-disciplinary courses, clinical practice courses, rigorous research and clinical training and internships. We are committed to cultivate future leaders with multifaceted competencies through deep integration of medicine and engineering.



### Talent Development

Cultivate visionary leaders bridging medicine and engineering



### Research Mission

Pioneer groundbreaking theories and disruptive technologies in medical-engineering convergence



### Social Impact

Address critical healthcare challenges and catalyze new productive forces for public health



# MD+PhD Dual Doctoral Degree Program

		Course	Medical Training	Scientific Research	International Exchange
UG: Health Science and Technology	Year 1	Humanities Courses Fundamental Courses Practical Courses		Research Seminars	
	Year 2	Humanities Courses Fundamental Courses Practical Courses Interdisciplinary Courses		GIFT Future Scholars Program	Summer School & Semester Exchange
	Year 3	Practical Courses Interdisciplinary Courses Pre-medical Courses	Clinical Exposure		
	Year 4	Practical Courses Introduction to Human Health and Disease		Graduation Project	
MD + PhD	Year 5	Basic Biomedical Sciences (Integrated Organ System-based Courses)		Interdisciplinary Research	
	Year 6	Medical Courses PhD Courses	Clinical Sciences and Skills		
	Year 7		Clinical Rotation		Research & Clinical Internship
	Year 8       Graduation		Integration of Scientific Research Training and Medical Practice  Degree Application and Conferment		



## Global Cooperation and Exchange



## Global Education

With deep roots in China, GIFT embraces global connectivity. GIFT stands at the forefront of technological evolution, driven by a mission to forge a globally integrated innovation ecosystem. Integrating science and education, partnering with industry, transcending disciplines, and leading through innovation, we orchestrate a strategic convergence of education, research, and talent. This triad forms the cornerstone of our strategy to address global challenges and unlock transformative opportunities.

## Talent Cultivation

GIFT forges deep collaborations with world-leading universities to integrate premium academic resources. This is manifested through diversified programs including semester exchanges, dual-degree programs, and early admissions. We attract students worldwide through full English-taught degree programs, blending globally recognized curricula with China's technological advancements. Core courses bridge cutting edge innovation with cross-cultural competencies, complemented by mandatory immersive practicums in multicultural environments.

With the goal of 100% internationalized education coverage, every student engages in international programs, from cross-disciplinary workshops to industry-aligned projects led by global experts. We enhance students' international perspectives and cross-cultural leadership, cultivating next generation pioneers equipped with technical expertise and cultural confidence.

## Inbound-Outbound Education

GIFT has established a dual-circulation cultivation ecosystem of "Inbound Integration Global Outreach", building up a borderless academic community. We recruit international students at all levels, offering fully English taught degree programs that integrate core curricula bridging global cutting-edge technology, alongside mandatory cross-cultural immersive practice. Concurrently, we encourage domestic students to pursue advanced studies abroad through programs at different levels. Dual degree or joint master/PhD programs are also available as well as non-degree mobility pathways, including summer or winter school, cross-cultural workshop and lectures.





# Research

## Overview

Guided by the country's major strategic priorities, the Global Institute of Future Technology (GIFT) has established an innovation ecosystem that integrates industry, academia, research, and application. Its research efforts focus on two forward-looking fields: Future Energy and Future Health.

In the area of Future Energy, GIFT focuses on strategic industries such as batteries and photovoltaics. It conducts interdisciplinary research across the full energy technology value chain—from basic science and advanced materials to manufacturing processes, digital systems, and policies. By leveraging technologies like the Internet of Things, artificial intelligence, big data, and cloud computing, the institute aims to drive breakthrough innovations in energy materials, product design, manufacturing, system integration, and application scenarios.

In the area of Future Health, GIFT integrates AI, big data, and virtual reality with bioinformatics, genomics, preventive medicine, and sports translational medicine. Its research explores how genetic, environmental, and public health factors affect life expectancy and aims to uncover health patterns across all life stages—from prenatal development to aging. The institute is committed to advancing disruptive technologies and applications in full-cycle proactive health management.

## School-Enterprise Cooperation



**SJTU-CATL Joint Research Center for Clean Energy Technologies**



**SJTU-Z-ONE Joint R&D Center for Intelligent Connected Vehicle Technology**



**SJTU/GIFT-Siemens Sustainable Technologies Research Center**



**Joint Research Center of Thermal and Humidity Management**

## Research Centers



### Innovation Center of Intelligent Connected Electric Vehicles

#### Overview

Anchored in national strategic priorities, the center advances through interdisciplinary integration and organized scientific endeavors to establish itself as a global hub for academic innovation. Concentrating on the core domains of automotive "new four modernizations" (intelligence, connectivity, electrification, and sharing), it develops a Double First-Class research platform that connects theoretical innovation with industrial application. By consolidating multidisciplinary resources into cross-domain teams, the center has built an open ecosystem for cultivating high-caliber talent. Through strengthened industry-academia-research alliances and enhanced core technology R&D capabilities, it advances transportation strategy.

#### Research Directions

- Intelligence: Overcoming key challenges in vehicle intelligence.
- Connectivity: Pioneering frontier technologies in V2X connectivity.
- Electrification: Enhancing the efficiency and performance of electric vehicles.
- Sharing: Exploring the technological potential of shared mobility ecosystems.



### Future Battery Research Center

#### Overview

The revolution of battery technologies unlocks new application domains. Today, with a global consensus of reducing carbon footprint, all-electric transportation and large-scale energy storage are rapidly moving to the central stage, but, at the same time, place unprecedentedly high requirements on the energy density, cycle life, cost and safety of secondary batteries. The Future Battery Research Center brings world-leading experts and talents from both academia and industry, focusing on next-generation battery technologies, to prepare our society for the next major leap toward carbon neutrality.

#### Research Directions

- Fundamental Physical and Engineering Battery Sciences
- Practical Application of Solid-State Lithium Batteries
- Demonstration of Transformative Battery Technologies



### Future Photovoltaics Research Center

#### Overview

The center adopts an interdisciplinary approach to solve key scientific problems in the fabrication and commercialization of perovskite solar cells (PSCs), for making it a truly disruptive technology that can revolutionize the existing photovoltaic field. Starting from investigations into fundamental mechanisms, the center aims for high efficiency, high stability, and high reproducibility of PSCs. We combine cutting-edge characterization methods, advanced simulation theories, artificial intelligence and novel manufacturing techniques, for creating new solutions, new processes, and new paths to promote groundbreaking innovations towards the realization of high-efficiency and stable perovskite solar cells.

#### Research Directions

- Mechanistic analysis and long-term prediction of perovskite stability
- Functional and structural design of high-efficiency devices
- AI-design and controllable upscaling of perovskite photovoltaics





## Center for Future Zero-Carbon Systems and Technologies

### Overview

The center is dedicated to serving the national "Dual Carbon" strategy, pioneering the exploration of cutting-edge technologies for future carbon-negative energy systems through innovations in green energy equipment and enhancement in efficient matching of energy supply and demand. Leveraging advanced thermal management, energy dispatch, and carbon reduction technologies, we continuously improve energy efficiency and emission reduction capabilities in critical fields such as large-scale energy storage, modern agriculture, and smart micro-grids. Our efforts aim to address key challenges in zero-carbon energy systems, including low efficiency, high cost, poor matching, and weak reliability issues. Through synergistic breakthroughs at both the equipment and system levels, we promote the large-scale application of zero-carbon technologies, achieve deep integration and healthy development of industry-academia-research-application, and contribute to building a low-carbon, safe, and efficient modern energy system.

### Research Directions

- Operation and Dispatch of Smart Microgrids
- Thermal Management in Energy Systems
- Carbon Dioxide Capture and Storage
- Biomass Resource Utilization
- Intelligent Vertical Farming Systems



## GIFT-SMART Center

### Overview

Focusing on the industrial and technological transformation on "AI + manufacturing" for renewable energy system equipment, this initiative explores cutting-edge smart manufacturing technologies characterized by ultra-high efficiency, reliability, intelligence, and low carbon consumption. It conducts research on key scientific theories and technologies, including high-reliability design of system form-performance coordination, highly efficient and smart extreme manufacturing, quality inspection and control, as well as intelligent operation and maintenance. The goal is to drive technological leaps and high-quality development in smart manufacturing across industries such as automotive, energy storage, photovoltaics, nuclear power, aviation, and shipbuilding.

### Research Directions

- **Reliability Modeling and Intelligent Design for Form-Performance Coordination:** system reliability design, form-performance coordination for modeling, fault analysis, and intelligent operation and maintenance.
- **Flexible Manufacturing System Modeling and Intelligent Control:** quality inspection, lean modeling, intelligent process and procedure control, energy management, etc.
- **Highly Efficient and Reliable Embodied Intelligent Manufacturing Technology:** highly efficient and reliable embodied intelligence technologies under complex environments, such as new energy vehicles and aerospace applications, including in-situ assembly, inspection, transportation, etc.
- **Disruptive Intelligent Manufacturing Technologies with Multi-physics Fusion:** disruptive manufacturing and atomic-scale manufacturing technologies that integrate physical, chemical, mechanical, and information fields, such as micro/nano robotics, spatter-free welding, and adaptive bonding, etc.



## Research Center for Surface Science and Advanced Materials

### Overview

Surface and interface science is the cornerstone of strategic needs in photovoltaics, energy storage, catalysis, and semiconductor technologies. Our center focuses on cutting-edge scientific topics in advanced materials research, and applies surface-interface science and advanced characterization techniques to investigate the correlations between atomic-scale structure and properties in advanced materials. On this basis, we aim to explore the degradation mechanisms of perovskite solar cells and advance industrialization of perovskite photovoltaic technologies; and optimize lithium battery interface to improve next-generation lithium battery technologies; and decode the structure-property relationship of light emitting materials to promote the technology development of next-generation stable and high-efficiency lighting and display devices.

### Research Directions

- Surface and Interface Science
- Energy Materials
- Atomic-Resolution Imaging
- Perovskite Solar Cells
- Perovskite LEDs
- Lithium-Ion Batteries
- Organic Electronic Devices



## Future Organic Optoelectronics Research Center

### Overview

Focused on strategic priorities in energy and healthcare, the center leverages the intrinsic advantages of organic semiconductors—including flexibility, large-area processability, and biocompatibility—to advance optoelectronic technologies through deep interdisciplinary convergence of chemistry, materials science, electronics engineering, and biotechnology. We target to address critical challenges in energy and health sectors, promotes the combination of new technologies and new applications, and bridge fundamental research with industrial implementation, delivering scientific support for low-carbon society development and next-generation healthcare innovations.

### Research Directions

#### Green Energy

- Organic photovoltaics
- Organic thermoelectrics
- Organic photocatalysis

#### Life & Health

- Organic photodetection
- Chemical/Biosignal detection
- Flexible bioelectronics



## Center for Future Display Technology

### Overview

The center addresses critical demands in next-generation display technologies. We focus on advancing novel display systems by overcoming key bottlenecks—including Micro-LED mass transfer and full color display—to deliver "Three Highs, One Low" solutions: high precision, high yield rate, high efficiency, and low cost. Our innovations empower applications in high-end displays, smart integrated materials, and flexible solar cells.

### Research Directions

- Next-Generation Display Fabrication: Microchips and Molecular Surface Engineering
- Innovative Backplane Design & Manufacturing
- Mass Transfer & Heterogeneous Integration for Micro-Devices
- AI-Powered Defect Inspection, Repair, and Performance Analytics
- Microscale Collective Intelligence for Adaptive Display Systems



## Center for Brain Health and Brain Technologies

### Overview

The human brain's remarkable capabilities have shaped civilization and driven technological advancement. Brain health is paramount to our species' future. Our research center combines cutting-edge technologies - from artificial intelligence and brain-computer interfaces to neuromodulation - with insights from psychology and neuroscience. Through this interdisciplinary approach, we investigate neural mechanisms underlying both healthy brain function and neurological disorders, advancing our understanding of brain health while developing innovative neural technologies.

### Research Directions

- Brain Mechanisms and Neurological Disorders
- Brain-Computer Interface and Neuromodulation
- Artificial Intelligence for Brain Health
- Space Neuroscience



## Center for Future Health and Intelligent Exercise

### Overview

The center is dedicated to promoting future-oriented healthy lifestyles, with the vision of advancing scientific approaches to exercise and intelligent solutions for health. By integrating cutting-edge technologies, such as artificial intelligence, wearable devices, and big data, with exercise science, the center enables real-time monitoring, personalized assessment, and intelligent intervention in physical activity. This approach supports exercise practices, disease prevention, and improved quality of life. FITX brings together multidisciplinary expertise to drive the integration of medicine and exercise and to build a comprehensive, full-cycle innovation ecosystem that spans fundamental research, technological development, standardization, and translational application. FITX aims to become a world-class research hub in future health and intelligent exercise, while serving as a leading platform for high-level talent development.

### Research Directions

- Exercise heterogeneity and chronic disease prevention
- Digital health and exercise robotics
- Multi-omics of exercise and the "exercise pill" concept
- Standardization of exercise-medicine integration and wearable technologies
- 3D exercise vision and embodied intelligence optimization



## Human Centric AI Research Center

### Overview

The newly established Center on Human-Centric AI (HCAI) at the Global Institute of Future Technology (GIFT), Shanghai Jiao Tong University, is seeking trailblazers at all ranks—from tenured full professors to postdoctoral researchers. This is a unique opportunity to shape the future of technology with an ambitious mission: making life happier, healthier, and more efficient for all. HCAI is pushing the frontiers of sensor technology, pioneering interaction techniques, and revolutionizing robotic applications for use at home and in industry.

HCAI's groundbreaking research focuses on two core areas:

1. Emotioned AI: Advancing the understanding of mental and physical health through non-invasive monitoring, intelligent reasoning, and predictive capabilities. Our goal is to unlock deeper insights into human well-being and enable proactive care solutions.
2. Embodied AI: Enhancing human capabilities directly, allowing individuals to achieve more in ways previously unimaginable, whether through augmenting physical abilities or facilitating complex tasks.

### Research Directions

- 3D Vision/Graphics
- Extended Reality (XR/VR)
- Natural Language Processing (NLP)
- Robotics/Autonomous Driving
- Large Language Models (LLMs)



## Center for Visual Intelligence and Health

### Overview

The Center for Visual Intelligence and Health is dedicated to addressing cutting-edge interdisciplinary challenges at the intersection of visual health and visual intelligence. With a focus on integrating human visual mechanisms and artificial visual systems, the Center aims to pioneer future-oriented frameworks for visual health perception and multimodal intelligence. Leveraging multidisciplinary strengths in artificial intelligence, computer vision, biomedical engineering, and psychophysics, the Center tackles key problems in visual health screening, intervention, and protection. It also advances the development of human-like visual perception, cross-modal cognition, and foundational models. The Center aspires to achieve internationally recognized theoretical breakthroughs and technological innovations, providing a dual foundation for public visual health and next-generation AI systems.

### Research Directions

- Intelligent assessment and evaluation of visual health
- Multimodal foundation models and human-like vision modeling
- AI-assisted diagnosis and treatment in ophthalmology
- Integrative studies of computer vision and cognitive psychology
- Human-machine collaboration and perceptual enhancement



## Center of Aging and Cancer Research

### Overview

The center investigates the mechanisms and patterns of aging and chronic diseases such as cancer from a One Health perspective. Guided by the ASAP framework (Awareness—enhancing public knowledge and accessibility, Screening—early detection and diagnosis, Action—innovative interventions for aging and cancer, Possibility—future-oriented prevention, disruptive technologies, and personalized approaches), the center collaborates with global experts to advance cutting-edge research and cultivate future leaders in the field. In partnership with The First People's Hospital affiliated with Shanghai Jiao Tong University School of Medicine, it co-establishes the "Chronic Disease Prevention and Anti-Aging Health Medicine Research Center", aligning with China's national health strategy and the broader vision of holistic well-being.

### Research Directions

- Mechanisms and key regulatory principles of aging
- Integrated and innovative approaches to anti-aging
- Pathogenesis and early intervention strategies for chronic diseases, including cancer
- Novel One Health concepts and methodologies



# Cooperation

The Global Institute of Future Technology (GIFT) integrates resources from both within and beyond the university to tackle cutting-edge scientific challenges. With a focus on Sustainable Energy and Health Science and Technology, GIFT delivers forward-looking solutions and cultivates next generation leaders to promote industry progress. GIFT places strong emphasis on industry-academia collaboration and co-educational models. It has established strategic and project-based partnerships with a number of enterprises and institutions.



## Partners in Future Energy

Contemporary Amperex Technology Co., Limited (CATL), Advanced Micro-Fabrication Equipment Inc. China (AMEC), Siemens Ltd., China, Huawei Technologies Co., Ltd., Z-ONE Technology Co., Ltd., Jiangsu Josem Environmental Equipment Manufacturing Co., Ltd., Baoshan Iron & Steel Co., Ltd. (Baosteel), Dongfeng Motor Corporation, Aero Engine Corporation of China (AECC), Shenzhen Neware Electronics Co., Ltd., etc.

## Partners in Future Health

Shanghai United Imaging Healthcare Co., Ltd., Ruijin Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai General Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai Mental Health Center (SMHC), World Laureates Association Laboratories (WLA Laboratories), China Computer Federation (CCF), etc.

## Special Thanks

People's Government of Minhang District, Shanghai  
People's Government of Xishan District, Wuxi, Jiangsu Province



# Media Influence

The institute strategically advances its media engagement by building a comprehensive, omnichannel communication framework. Through well-designed campaigns and effective execution, GIFT consistently secures exposure on leading mainstream media platforms, leveraging authoritative outlets to build a strong professional reputation. At the same time, the institute is actively innovating in the new media space, developing signature communication IPs to generate multidimensional media resonance. GIFT also continues to expand its global communication channels, ensuring the institute's vision, initiatives, and achievements reach international audiences and gain global visibility.



## Media Coverage



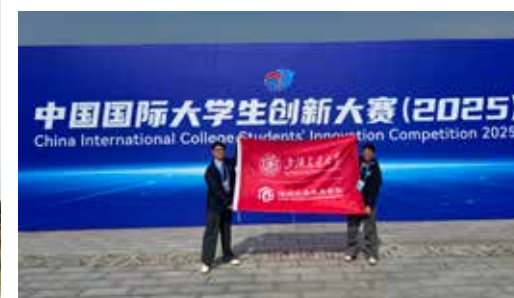
# Media Influence



# Moments of GIFT



嘉洲博海  
進俱日興





# Future Vision

## Twin-Building

GIFT's founding location is located in the East Wing of the Yue-Kong Pao Library on SJTU's Minhang Campus, nestled beside the serene Siyuan Lake. Designed with a forward-looking "Sciences & Arts" concept, the new GIFT building covers a total area of 60,000 square meters. Construction commenced in April 2024 and is scheduled for completion in 2027. Together with the CATL Future Energy Research Institute (Shanghai), it will form a collaborative Twin-Building complex that exemplifies industry academia integration. The Twin-Building is set to become a signature landmark in Shanghai's Grand Neo Bay Global Innovation and Entrepreneurship Community.

# Future Vision



East Wing, Yue-Kong Pao Library Complex (Administration Offices)



Building No. 17 by the Freshwater River (Future Health Research Platform)



Ruijin Hospital Minhang Campus, Shanghai Jiao Tong University School of Medicine



CATL ABC Building (Industry-Education Integration Demonstration Lab)



The 4<sup>th</sup> Floor of the Green Environment West Building (GIFT Future - X Center)





Every act of generosity, trust, and support contributes to the vibrant growth of the Global Institute of Future Technology.

It inspires our students to pursue their dreams and become trailblazers of the future.

**Email: [gift-giving@sjtu.edu.cn](mailto:gift-giving@sjtu.edu.cn)**

# Support Us