

CONNECTION

The Official Newsletter of Zhejiang University

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*Seeking Truth
Pursuing Innovation*



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MESSAGE FROM THE EDITOR-IN-CHIEF

As the time goes by, the year of Rat is drawing near. The whole campus is now buzzing with excitement. It's a festive season, as well as a season of harvest.

Inspiring breakthroughs are seen in the fields of clinical research, immunocytology and 3D printing. Our scholars and students shone brightly on the global stage, pushing forward the frontiers of their respective disciplines. This year, two Zhejiang University researchers became new members of CAS and CAE, among China's highest academic honors. Three ZJUers earned the titles of pioneers and inventors for 2019 MIT TR35 China.

With a global vision and concrete actions, we are committed to various global endeavors and dedicated to serving society locally, nationally and globally. I am proud to share with you that ZJU, among the 35 universities from 30 countries on six different continents, was selected for IAU-BBC "Aiming Higher in a Transforming World" documentary series.

As always, I'm glad to hear your thoughts. Also, taking this opportunity, please accept my sincere wishes for a blissful new year.

LI Min, Editor-in-Chief
Director, Office of International Relations



Editorial office :
Global Communications
Office of International Relations, Zhejiang University
866 Yuhangtang Road, Hangzhou, P.R. China 310058
Phone: +86 571 88981259
Fax: +86 571 87951315
Email: newsletter@zju.edu.cn

Edited by :
AI Ni, XIE Jing, JIANG Li

Designed by :
JI Yuhuan

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International

ZJU now No.6 in QS rankings of Asia's best universities

Zhejiang University is up seven slots, from #13 to #6, in the Quacquarelli Symonds (QS) Asia University Rankings for 2020. According to a statement by QS Top Universities, "Mainland China dominates the rankings for number of universities, with 118 in total and four among the top-ten: a remarkable progress. Until 2015, only one university from Mainland China featured among Asia's top ten."



Overseas Academician Joint Lab for Advanced Composite Materials and Structures officially launched

On December 2, Zhejiang University Overseas Academician Joint Lab for Advanced Composite Materials and Structures was officially launched. A total of 6 overseas experts, including Michael R. Wisnom (Fellow of the Royal Academy of Engineering and a professor at the University of Bristol), Yiu-Wing Mai (Fellow of the Royal Academy of Engineering and a professor at the University of Sydney), Prof. Kevin D. Potter, Prof. Fabrizio Scarpa and Prof. SU Bo from the University of Bristol, and Prof. LI Shuguang from the University of Nottingham, joined the lab.



ZJU NEWSROOM

CREATE Action Plan released to boost ZJU's global profile

Zhejiang University has launched a new CREATE Action Plan aimed at providing a strategic direction to the various global endeavours undertaken in the University. Six objectives and the related actions, including measures of success over the course of the next three years, are set out in the Plan. Speaking at the launch, President WU Zhaohui said global engagement is an important propeller to advance its mission to serve society locally, nationally and globally.

Closing the launch, REN Shaobo, Secretary of CPC Committee of ZJU, said there was still much work to be done to establish in-depth mechanismic collaborations.





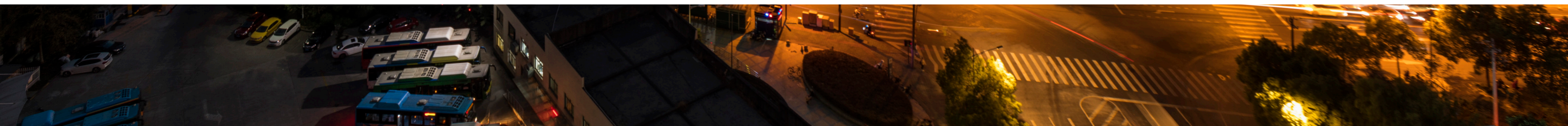
2019 International Conference for Big Data and Intelligent Health held in Hangzhou

On December 8th, the 2019 International Conference for Big Data and Intelligent Health was convened at Zhejiang University. The conference was co-organized by School of Public Health, the Second Affiliated Hospital of School of Medicine and the National Institute for Data Science in Health and Medicine at Zhejiang University. Themed on "Population Health and Intelligent Medicine in the Era of Big Data", it attracted more than 200 participants from academic and industry.

Public Engagement

ZJU portrayed in IAU-BBC "Aiming Higher in a Transforming World" documentary series

Zhejiang University (ZJU) has been featured in a documentary developed by BBC StoryWorks in cooperation with International Association of Universities (IAU). This series, named "Aiming Higher in a Transforming World" conveys the key role of universities in addressing societal transformations. ZJU was among the 35 universities from 30 countries on six different continents selected for participating this project. We showcase our technology driven innovation and entrepreneurship education. The series now is available on the dedicated portal and the mini-documentary on ZJU is under the heading "Technology".



Education

“Science for Future Society” workshop hosted by ZJU

On November 12, the “Science for Future Society” workshop, one of the events in the 2019 General Meeting for the World Academy of Sciences for the advancement of science in developing countries (TWAS), was held on Zijiangang Campus at Zhejiang University. Founded in 1983, TWAS is a non-governmental, non-political and non-profit science academy, working to advance science and engineering for sustainable prosperity in the developing world.



ZJU establishes new School of Brain Science and Brain Medicine

On December 27, 2019, Zhejiang University has established a new School of Brain Science and Brain Medicine, which will serve as an important unit for a suite of academic programs, research, innovation, outreach focused on finding answers to the complex problems about brain. As China's first institute for teaching, scientific research and clinical research in the domain of brain science and brain medicine, the School will be committed to creating a major interdisciplinary research platform for brain science.

New Era, New Journey and New Future -Inauguration Ceremony of Zhejiang University Medical Center

In the morning of December 25, 2019, Zhejiang University Medical Center held a plain yet solemn inauguration ceremony. With the inauguration as the new starting point for its journey, the Medical Center will benchmark to nationally-advanced and internationally-leading standards. Oriented to the clinical problems, guided by cutting-edge research and supported by public platforms, it will focus on the R&D of disruptive medical technologies and synergize multiple disciplines including medicine, engineering and ICT. It will also secure the connected chain of knowledge innovation, technology innovation and democratized applications.

Research

Interesting encounter between deep learning and corn yield

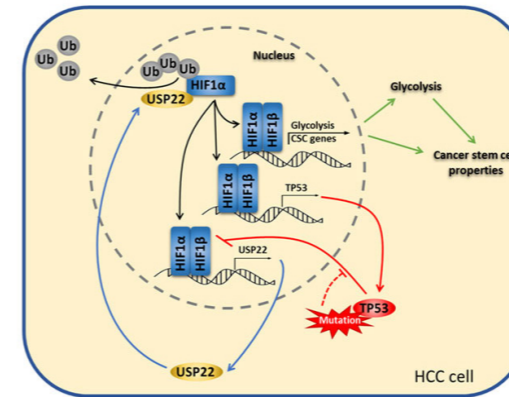
The research team led by LIN Tao from Zhejiang University developed a long short-term memory (LSTM) model that integrates heterogeneous crop phenology, meteorology, and remote sensing data to estimate county-level corn yields. The LSTM model accounts for 76% of yield variations across the Corn Belt in nine Midwestern states within the US from 2006-2016, improved from 39% of yield variations explained by phenology-based meteorological indices alone. The LSTM-based deep learning approach holds great promise to gain an improved understanding of global climate change on agricultural production.



Nature names ZJU 20th globally for prolific research output

Zhejiang University ranked No. 20 in the world out of 500 academic institutions and 6th among Chinese universities for publication of scientific research, according to the latest report from the Nature Index.

The ranking is based on research results published in 82 high-quality scientific journals. The rate of our inclusion in those prestigious journals in chemistry, life sciences, physical sciences and earth and environmental sciences is taken into account and co-authorship is adjusted fractionally by the index.



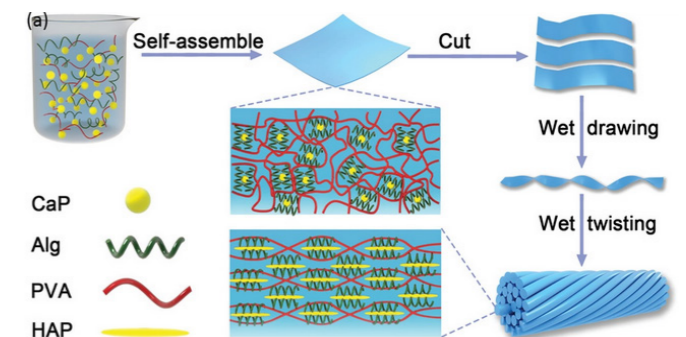
Graphical summary of the molecular mechanisms for the present research

New findings suggest USP22 as a promising target for the HCC therapy

Recently, the research team led by Prof. XU Xiao from the Zhejiang University School of Medicine published a research paper entitled "SP22 promotes hypoxia-induced hepatocellular carcinoma stemness by a HIF1α/USP22 positive feedback loop upon TP53 inactivation" in the journal of Gut. The team has developed a novel type of ROS-responsive nano-gene drug. The reduced expression of USP22 in tumors can significantly hinder the growth of HCC and enhance the sensitivity of HCC cells to Sorafenib, providing an effective strategy for the HCC therapy.

Hybrid macrofiber with spider silk-like supertoughness

Researchers applied a biomineralization inspired technique to synthesize functional organic-inorganic fibers that are structurally complex and, furthermore, industrially manufacture spider silk fibers (SSF) like artificial fibers with a supertoughness. Their findings are published in Advanced Functional Materials. The resulting fibrous material has promise for applications such as flexible ballistic fabrics owing to its excellent mechanical properties. More importantly, the composite materials PVA, Alg and HAP are inexpensive and highly available in markets. In addition, this fabrication process represents an alternative pathway for the development of the fiber industry.



Updated version of Jueying robot dog released

The latest version of the four-legged "Jueying" robot dog was released on November 1. "This new version is featured by remarkable kinetic and perceptive capabilities. It has made another major breakthrough in algorithms, particularly in bounding and jumping," introduced ZHU Qiuguo from the Zhejiang University College of Control Science and Engineering. It is expected to play its vital role in daily life and production. As a legged robot, it can easily perform inspection tasks thanks to its camera and other sensing and detection gadgets.





RESEARCH HIGHLIGHTS

Intriguing story behind an autoinflammatory disease published in Nature

Last year, Children's Hospital attached to Fudan University cured a special patient. He was a two-year-old Chinese boy, with periodic fever episodes occurring every eight to ten days and lasting for three to five days.

With the advice of researchers, doctors adopted a novel therapeutic method, by which the boy experienced clinical improvement and the frequency of fevers declined significantly. This treatment was based on concerted efforts by the ZHOU Qing Lab from the Zhejiang University Life Sciences Institute and Children's Hospital attached to Fudan University. They detected the culprit behind this mysterious autoinflammatory disease—non-cleavable RIPK1 variants. The data in this study

highlighted the role of RIPK1 kinase activity in promoting apoptosis and necroptosis and catalyzing transcriptional production of pro-inflammatory cytokines, such as IL-6, which is a previously under appreciated aspect of RIPK1 biology. On December 11, 2019, the study was published online in the journal of Nature

This research provided insights into the complex disease mechanisms behind non-cleavable RIPK1 variants in humans compared to that of the mouse models. It also linked an activating RIPK1 variant to ferroptosis, which sheds light on the diverse roles of RIPK1 in regulating several cell death pathways.

Peripheral immune cells under stress cause anxiety-like behavior, a study shows



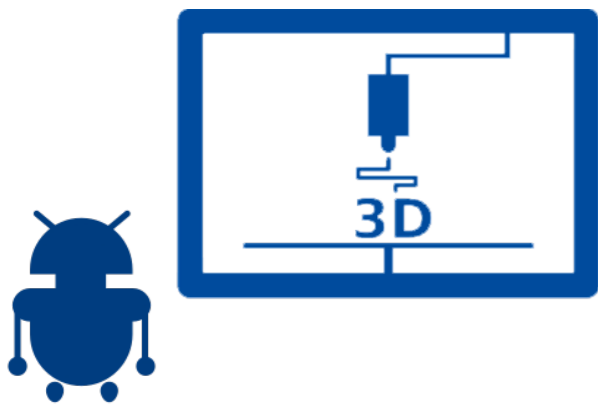
The central nervous system was previously assumed as the major "culprit" behind depression and anxiety. Little attention was paid to the role that other organs played in this process. Recently, researchers from the JIN Jin Lab at the Zhejiang University Life Sciences Institute found that physical stress-induced leukotriene B4 triggers severe mitochondrial fission in CD4+ T cells, which further leads to a variety of behavioral abnormalities including anxiety, depression, and social disorders. Their research findings are published in the October 31 issue of the journal of Cell.

Co-lead authors are PhD student FAN Keqi and Dr. LI Yiyuan at the Zhejiang University Life Sciences Institute, and co-corresponding authors are Prof. JIN Jin from Zhejiang University and Prof. CHAI Renjie from Southeast University. By virtue of a series of big data tools, they devised an immune-brain map, which helped them find the clue to the connection between T cells and the nervous system.

This research establishes peripheral CD4+ T cells as pivotal mediators of stress-induced mood disorders. In the future, it will be intriguing to clarify whether a specific CD4+ T cell subpopulation regulates emotions and behavior in anxious patients. It is also essential to get a better picture of the mechanism by which LTB4 promotes the mitochondrial morphology of CD4+ T cells.

It is expected that they will create profound implications for developing a valuable therapeutic approach to various psychiatric and metabolic diseases.

All-printed flexible and stretchable electronics fabricated by a special liquid-metal-silicone ink

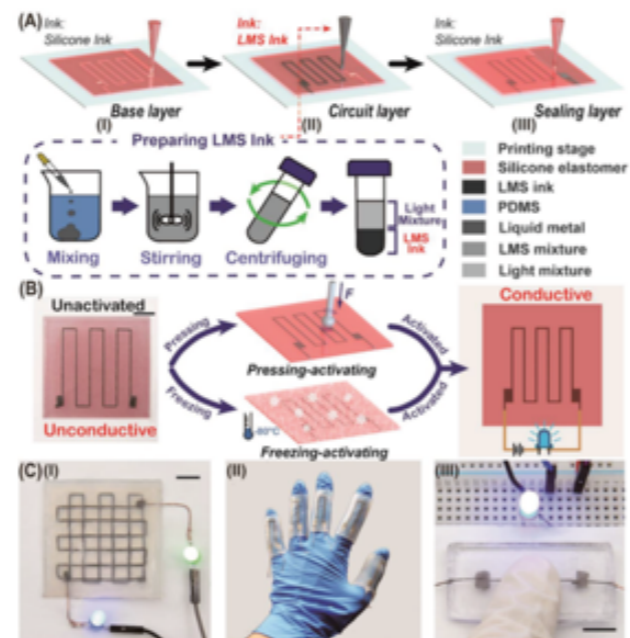


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Students

Students wins second prize at 2019 International Youth Contest of Social Anti-Corruption

The International Anti-Corruption Day, which falls on December 9 every year, is observed to raise public awareness of fighting against corruption all over the world.

On the International Anti-Corruption Day this year, four students from the Zhejiang University College of Computer Science and Technology, including SHEN Lvkesheng, LU Ziyi, XING Shuting and CAI Yu, stood on the podium at the 2019 International Youth Contest of Social Anti-Corruption Advertising “Together against Corruption!”. Their video entitled “Tango of Honesty and Corruption” won the second prize in the Best Video category.



scan QR code to watch video



ZJU teams shine in 1st “Intel Cup” China Postgraduate AI Innovation Competition

On November 24, the grand final of the 1st “Intel Cup” China Postgraduate AI Innovation Competition was concluded in Deqing City, Zhejiang Province. Zhejiang University performed remarkably, clinching a total of six prizes.

A total of 1217 teams from 193 universities across the country signed up for this competition, with 6 First Prize winners, 11 Second Prize winners and 36 Third Prize winners. It was organized by Children & Youth Science Center affiliated to China Association for Science and Technology and hosted by Zhejiang University under the guidance of China Academic Degrees and Graduate Education Development Center.

ZJU student wins silver medal in students’ division of Kan Tai-Keung Design Award 2019

On the evening of December 28, 2019, the 20th edition of Kan Tai-Keung Design Award was held at Shantou University. The work designed by SONG Zheqi from the Zhejiang University School of Art and Archaeology under the tutelage of LI Chenghua clinched a silver medal.

Kan Tai-Keung Design Award 2019 received 702 and 4680 works in the professional division and in the students’ division respectively. The panel of judges selected 9 winners in the professional division and 13 winners in the students’ division in the final phase.



Faculty



CAS, CAE add two ZJU faculty members to their ranks

Two Zhejiang University researchers are among 139 new members of the Chinese Academy of Sciences (CAS) and Chinese Academy of Engineering (CAE) and 49 foreign associates from 19 countries, the academies announced Friday.

The two – YE Zhizhen, a professor of Material Science and Engineering; REN Qilong, a professor of Chemical Engineering and Technology– bring the total number of living ZJU faculty members who are members of the academy to 49.

YE, who is director of MOE's Key Laboratory of Biomass Chemical Engineering, works on deposition of ZnO thin films and p type doping and fabrication of LED and application of transparent conducting coating in solar cell.

REN focuses on separation and pharmaceutical engineering, natural Pharmaceutical Chemistry and supercritical Fluid Technology.

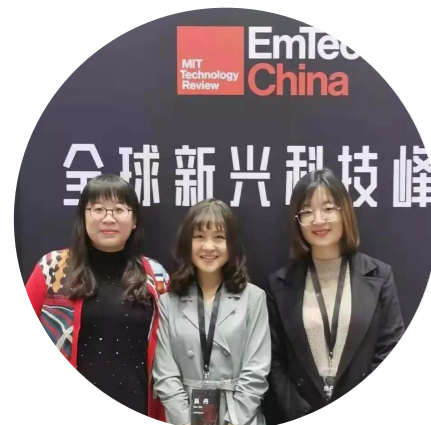


3 ZJUers named to 2019 MIT TR35 China

MIT Technology Review announced its regional list of the top 35 innovators under the age of 35 in China—the TR35 China at EmTech China. 3 ZJUers earned the title of pioneers and inventors.

WU Dan was selected for the MIT TR China as a pioneer for her work in improving the resolution of medical images and the imaging speed. ZHAO Baodan was also selected for the MIT TR China as a pioneer for her work in improving perovskite LED efficiency in an easy and cheap way. ZHANG Ting earned the title of the MIT TR China as an inventor. She developed tomographic diffractive microscopy (TDM) which is a label-free, far-field, super-resolution microscope.

Since 1999, the editors of Technology Review have honored the young innovators whose inventions and research are most intriguing and fascinating; today that collection is the TR35, a list of technologists and scientists, all under the age of 35. Their work-spanning medicine, computing, communications, electronics, nanotechnology, and more—is changing our world. There are five categories: inventors, entrepreneurs, visionaries, humanitarians and pioneers.



Campus

ZJU-Zijingang's newest dining hall opens

The newest dining hall on the Zhejiang University-Zijingang campus is fully operational on Dec. 28. Located at the student dormitory areas in the Zijingang West, it offers a variety of food options and bright décor.

"The view through the big windows is a great feature of the space," many students said.

This dining hall will serve breakfast between 6:30-09:00 am, lunch between 11:00 am-13:00 pm, and dinner between 16:30-18:30 pm.