



ZJUI

NEWSLETTER

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ZJUI sophomores impact robotic surgery

January 27th, 2019

Photo/Writer:Yang Liangjing
Research team
Translator:Tingkai Liu



The progress made by a team of sophomore ZJUI students is making waves on an international stage. Kaiwen Hong and Yue Sun, sophomores in mechanical engineering, worked with Jiale He, sophomore in computer engineering, on a robotic surgery training system. Prof. Liangjing Yang advised the team. Their work was presented by Kaiwen at the 14th Asian Computer-Assisted Surgery Conference, held at Shanghai Jiaotong University in November 2018. Their conference paper, "A Preliminary Design of a Robotic System for Kinaesthetic Training of Surgical Tasks," was also selected for *the IET Journal of Engineering*, and was published in September 2019.

Th project explores how training can be improved for surgical robots. The team considered kinematics principles and operational path requirements. They simulated system operation, and tested it with an open-source robot arm drive.

Prof. Yang is enthusiastic about student participation in cutting-edge research. He reports that "ZJUI students are very motivated to achieve the ultimate goal set by the project. Their research participation is not related to an in-class grade, which means it is purely an extracurricular effort, so it requires self-motivation. The main participant, student Kaiwen Hong, has a very positive attitude. He is eager to challenge difficult problems and tasks and willing to delve into material beyond the classroom experience. All of these students will become cross-disciplinary experts."

UIUC Delegation Visits as Campus Cooperative Education Starts a New Chapter

March 3-4, 2019

Translator: Jiang Chenhuan



UIUC Chancellor Robert J. Jones led a team to visit the International Campus of Zhejiang University (ZJU) in March. The delegation participated in the Second International Symposium on Higher Education at Zhejiang University. Both universities signed Memoranda of Understanding initiating a new joint research center and establishing doctoral program cooperation. After the symposium, the delegation visited ZJUI for strategic dialogue with the leadership team and coordinators of related disciplines from ZJU, met with faculty and students, and reviewed more than two years of institute operation.

ZJU President Wu Zhaohui and UIUC Chancellor Jones officially opened the ZJUI wing of the Engineering Building on March 4. Other delegates included ZJU vice-president and international campus dean He Lianzhen, UIUC vice provost Reitumetse Mabokela, standing committee of the party committee member and minister of publicity of ZJU Ying Biao, Assistant President of ZJU, Secretary of the Party Working Committee and Vice Dean of the International Campus Fu Qiang, ZJUI leaders, others from UIUC, and representatives of ZJU. The President and Chancellor marked the start of this new chapter for ZJUI. The two leaders delivered keynote speeches at the symposium. ZJUI Dean Li Erping and UIUC College of Engineering Dean Rashid Bashir also signed a Letter of Intent to prepare groundwork for masters' programs.

During the intensive two-day visit, UIUC delegates emphasized to ZJUI faculty and students that "you are an important part of us." The delegates had in-depth communications with ZJUI faculty members. ZJUI dean Li Erping and executive dean Philip Krein reported on the status of the institute. ZJUI faculty representatives introduced their research areas. Engineering department heads from UIUC shared strategic research directions from each department, welcoming collaboration on global challenges. The delegates discussed how the partners can create favorable conditions for ZJUI faculty, and how UIUC advanced research plans can influence efforts at the institute.

The UIUC delegation met with students on the evening of March 5th. Chancellor Jones and Dean Bashir presented UIUC-style shirts to all the students. Dean Bashir presented dean's list certificates to many ZJUI students, encouraging them to keep studying hard and become outstanding representatives of both ZJU and UIUC. Dean Bashir and UIUC engineering department heads presented department news and held an intensive discussion session with the students.

Since the establishment of ZJUI three years ago, our commitment has deepened. The institute intends to keep pioneering and innovating. ZJUI student-centered programs are committed to breaking through discipline barriers, providing excellent cross-disciplinary education, and addressing crucial real-life challenges. These efforts will help Chinese students obtain world-class international education in China. The institute further promotes scientific research cooperation and transformative projects. Challenges at the global, national, and regional levels guide the work. The opportunities in the Greater Hangzhou Bay Area and the Yangtze River Delta are perhaps the most dynamic in today's world. The institute will try our best to serve our students and faculty, create an environment for exceptional scholars and innovators, and continue to be in the forefront of Sino-foreign cooperatively - run universities.

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Home and School Uniting Together to Build the Future —— ZJUI holds “Parents Day”

March 30th, 2019

Translator: Liu Tingkai



ZJUI held its second “Parents Day” event on the International Campus in March. More than 140 parents attended. The events were planned around interaction with ZJUI leadership and faculty. Dean Li Erping talked about “Tireless pursuit of excellence” about the importance of cross- disciplinary engineering training for the future. Through the mission vision, education, and training programs of the institute, he laid out a roadmap and vision for student life and learning. Dean Li said that "The development of cross-disciplinary training is an excellent way to stimulate student interest and expand the horizons of engineering. As a new institute that was initiated just three years ago, we still have a long way to go. We will move forward and seek excellence. I firmly believe that in the era of globalization, the world needs students like the ones at ZJUI."

Executive Dean Philip Krein gave parents a perspective on “Preparation for Graduate Study in the US.” He pointed out the traditional misunderstanding of school rankings, a desire for students to target “famous professors,” and over-emphasis on GPA. He emphasized that for students, in addition to daily study, participation in research training, industry internships, team projects, and campus leadership are important. He presented ways for students to secure letters of recommendation from their professors, how to write a good personal statement, and how to choose a supervisor.

Assistant Dean Lu Qiang held an open discussion to address parent concerns. He explained research directions linked to the institute's cross-disciplinary education, how GPA is computed, and how parents can communicate future concerns. He expressed the hope that parents will help support ZJUI educational programs, urge students to cherish their youth, and work with the Institute for healthy and productive student growth.

Ms. Liu Ling, Chair of the ZJUI Parents Board, spoke on behalf of the parents. She reported on prior work of the Parents Board and presented some expectations for the institute. She reported that the Parents Board will continue to cooperate with the institute for the benefit of all ZJUI students.

The event included laboratory tours and tours of key campus facilities. Faculty presented overviews of majors, including Professor Li Chushan’s talk on "Why to Choose Electrical Engineering," Professor Zhu Tingju’s presentation on "The Past, Present and Future of Civil Engineering," and others. Sophomore Hong Kaiwen shared his experiences in participating in research projects (see article above). Freshmen Su Haoyu and Yang Zhaohua presented the small self-driving “cars” from their "Introduction to Electronics" course team project. Juniors Wu Zhenbang and Huang Jinghan, who had recently returned from an exchange term at UIUC, shared their perspective on three years of life and study at ZJUI.

The Parents Board elected six vice chairs and confirmed that Ms. Liu Ling will serve another term as Chair. This past year, the Parents Board has played important roles in helping parents and institute communicate, helping students expand extracurricular research and social practice, and promoting the Institute. Executive Dean Krein expressed his gratitude to the Board on behalf of the Institute and looked forward to closer contact and support. The Parents Board reported that it will further promote communication between parents and the institute, unite strengths of parents to create more opportunities for students, and contribute to the development of the institute. 🇺🇸



Student team receives Outstanding Winner INFORMS Award in the 2019 international Mathematical Contest in Modeling

April 21st, 2019

Writer: Xia Ping

Translator: He Yanqi



A team of three ZJUI students received an Outstanding Winner INFORMS Award in the 2019 international Mathematical Contest in Modeling. The team consists of Lin Hangzheng, Tong Xinhao and Yuan Jinsong, all undergraduates majoring in computer engineering. The Mathematical Contest in Modeling (MCM/ICM) is an international mathematical modeling competition held annually in USA and sponsored by Society for Industrial and Applied Mathematics (SIAM), the National Security Agency (NSA), and the Institute for Operations Research and the Management Sciences (INFORMS). Every year, thousands of teams prepare original mathematical papers in response to modeling problems aimed at real-world problems. Economy, management, environment, resources, ecology, medicine, safety and other fields have been topics of the competition. Teams of three students are required to compete specific tasks in modeling, preparing a solution, validating the work, and writing a paper on the designated problem within 72 hours after it is posted.

The 2019 contest problems were issued on January 24. Six different problems were posed to the contestants. The ZJUI team chose problem B, “Send in the Drones: Developing an Aerial Disaster Relief Response System.” Their solution was one of many to receive top Outstanding Winner and INFORMS Award honors.

"We benefit a lot from the teaching environment on the ZJU international campus, in which the advantages of east and west are integrated," said Lin Hangzheng and his teammates. "We use English to write papers in our daily courses and this promises us high efficiency of paper writing in contest, so we could save more time and energy for modeling and calculation."

Last year, ZJU students Chen Yifan, Xu Chao, and Jiang Enyi received Meritorious Winner recognition in the competition, so ZJUI excellence continues to climb. 🇺🇸

Writing Award from 2019 American Society Civil Engineering Mid-Pacific Student Conference

May 27th, 2019

Photo: Zhang Xiaodi, Li Yipeng

Translator: He Yanqi



Zhang Yu, a civil engineering student at ZJUI, won first place in the China Division and fourth place in the world as part of the Competition of Engineering Ethics Papers held at the 2019 ASCE Mid-Pacific Student Conference. The competition evaluates the abilities of participants in critical thinking and oral presentation. The participants write papers discussing engineering ethics on the basis of their understanding of the code of ethics, and then present and discuss their ideas with the judges. Zhang Yu’s paper started from the status of equal rights in the United States, and then explored equality issues in civil engineering. She stood out from participants with her fluent English expression and excellent defense skills. She credited ZJUI Professor Ryan Falangan for his guidance. The ASCE Student Conference is a long-standing event founded by the American Association of Civil Engineers. The competition this year was held in April at San Jose State University. There were six events in the competition, including retaining wall design, concrete boats, water treatment, transportation, sustainable design, and papers. Fifteen universities participated, including the University of California, Berkeley, the University of California, Davis, Zhejiang University, Tongji University, and Southwest Jiaotong University.

Zhang Yu said, "The English teaching mode of our institute contributes a lot to my success because the environment makes it easier for me to understand American culture and to analyze and think from a more fundamental point of view. In Prof. Flanagan's classes, I learned how to write an English paper and how to make it logical and novel. Thanks to our classes, I'm a lot more confident with myself on the world stage." 🇺🇸

The First International Concrete Dragon Boat Competition hailed a success!

June 10th, 2019

Photo / Ma Wei
Translator / Lin Lan



ZJUI hosted the First International Concrete Dragon Boat Competition on campus on June 7. 27 teams, including the University of Southern California, Tongji University, Harbin Institute of Technology, Shanghai Jiao Tong University, and Tianjin University, gathered on campus for the event. Spectators were surprised that concrete can be the basis of graceful watercraft. Like dragons in flight, the boats sailed across the campus lake.

The competition was hosted by the School of Innovation and Entrepreneurship at ZJU and organized by ZJUI and the Youth League Committee of the International Campus. It was co-organized by the American Concrete Institute (ACI), with academic guidance from the Architectural Society of China and the National Concrete Structure Teaching Academic Committee. It was sponsored by Qinshan Construction, a well-known construction company in Zhejiang Province. Contestants must use concrete, an essential material in modern engineering, to create a dragon boat with traditional Chinese cultural features. They participate in racing and obstacle course events, and in tests of material mechanics. They prepare a written technical report. Each team must demonstrate the skills needed to design and construct a concrete dragon boat. This task not only tests understanding and application of new cutting-edge concrete materials technology, structural design knowledge, and analytical calculation ability, but also requires the teams to demonstrate interdisciplinary knowledge, imagination, creativity, and artistic design.

The team from the University of Southern California (USC) said that "The International Campus is really beautiful, and the International Concrete Dragon Boat Competition is so interesting. The process of designing and decorating our dragon boat has been a wonderful experience. Our boat is a fusion of Chinese and American culture." Three women from USC said it was their first visit to China, were excited to participate in an activity that both matched their professional background and embraced cultural fusion.

The competitors from ZJUI not only designed and built their boat during the busy final examination period, but also worked hard to develop technical rules and organize the competition. Feng Yiqi said, "we started from scratch, and after two months of struggle, the detailed rules and a boat with competition capability took shape. The schedule for the final stage of the competition fell right on top of our final exams, we had to make full use of our time. For the final game, although there are great regrets, it was also a great experience for us. I would also like to express my heartfelt thanks to our professor Xiao Yan and research assistant Ma Ke for their guidance." Zhang Kaihang also said, "In the modeling and production of our concrete dragon boat, the Civil Engineering and Mechanical Engineering cross-disciplinary cooperation was fantastic. I learned a lot outside my textbooks, and made many friends. It added a wonderful touch to my university life".

Professor Xiao Yan, the initiator and director of the Technical Committee of the competition, expressed his gratitude to the participating teams and encouraged them to participate again next year. He said, "Thank you very much for coming to the First International Concrete Dragon Boat Competition. Today we have made history together. I hope you enjoy the competition, the practice and the fusion of traditional culture and cutting-edge technology."

The Tianjin University team, Chen Haoyu, Su Zhiwei, and Zou Yi, won the gold medal. The team from Dalian University of Technology, Shi Jiancheng, Ci Xiang, and Lao Guihong, and the team from Central South University, Liu Bonan, Wang Zilong, and Hua Wenjun won silver medals. Teams from Xi'an University of Architecture and Technology, Central South University, and the People's University of China won bronze medals. 🏆

Funding Success from the National Natural Science Foundation in 2019

August 30th, 2019

Writer: Zhu Xinran



ZJUI cooperates with Dunman High School to cultivate global technical leaders

August 16th, 2019



The recent evaluation results announcements from the National Natural Science Foundation of China listed seven successful new ZJUI projects, including 7 general projects, 4 projects for young scholars, and 1 project for international young scientists. Dean Erping Li commented that "A success rate of 7 approved proposals out of 11 submissions helps mark ZJUI as a hub for research innovation." Profs. Xiao Yan, Shao Fangwei, Chen Wenchao, and Hu Huan received general projects, Prof. Yang Liangjing received a project for international young scientists. Profs. Li Binbin and Tan Shurun received young scholar projects.

The funded proposals include:

Shao Fangwei: Develop functional DNA nanohydrogel as a multi-modulus drug loading and synergistic targeting deliver system

Xiao Yan: Research and development on cross laminated bamboo and timber CLBT

Chen Wenchao: Study of Multiphysics Processes and Ultrafast Response Mechanisms in Ballistic Avalanche Heterojunction

Hu Huan: Heated Scanning Probe-Based Nanofabrication Technology for Nano-Electro-Mechanical Systems

Yang Liangjing: Camera-based Tool Trajectory Analysis for Robot-Assisted Surgical Procedures

Li Binbin: Fast and automated Bayesian operational modal analysis for long-span bridges

Tan Shurun: Efficient Electromagnetic Scattering from Bounded Periodic Structures of Large Electrical Sizes Using the Broadband Green's Function Theory.



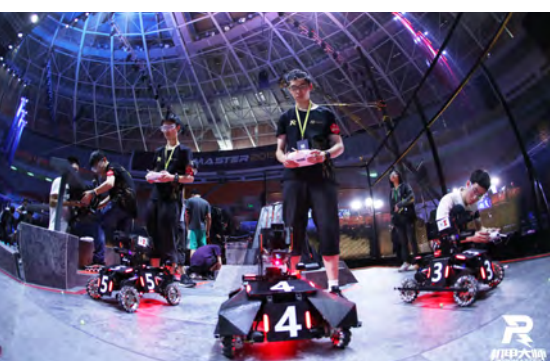
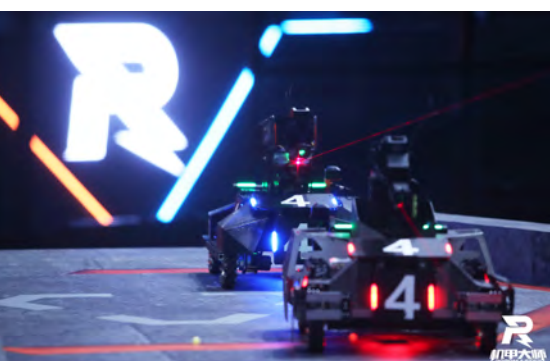
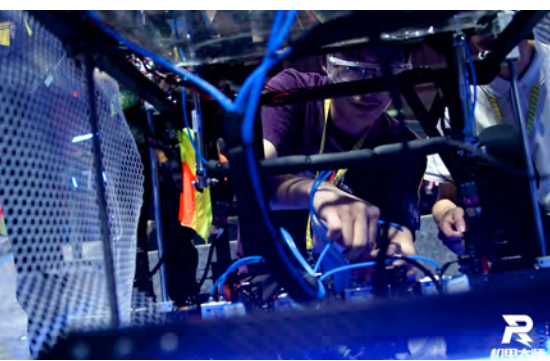
ZJUI signed a Memorandum of Understanding (MOU) with Singapore's Dunman High School to cultivate global engineering leaders of the future. Dunman High School becomes the first Singapore school to collaborate with ZJUI for undergraduate recruitment. Dunman High School will also provide a ZJUI recruitment center for applicants from Singapore. ZJUI Dean Li Erping, Professor Ong Wee-Liat, and Professor Yang Liangjing joined the ceremony. The MOU was signed by Professor Li and by Mr Tony Low, Principal of Dunman High School. Mr Kang Kai, Education Counsellor from the Embassy of the People's Republic of China in Singapore also attended.

Dean Li and Professor Ong later shared, in detail, the world-class engineering education provided by ZJUI to more than 300 Dunman High School students. They highlighted ZJUI's aim to prepare engineers in unique ways for global leadership and impact through multi-disciplinary research and education for scientific excellence, innovation, and creativity. Both sides are looking forward to more outstanding students joining the ZJUI family and will endeavor to deepen the cooperation between the two schools. 🇸🇬

ZJUI Students Shine at Robomaster Robotics Competition

August 8th, 2019

Photos | Robomaster
Translator | Liu Tingkai



The 2019 Robomaster Robotics Competition finished up in August. “Team Meta” from ZJUI tied with the Japanese Fukuoka United University team for fifth place in the international regional competition. The robots that Team Meta developed also received a design award. At the international regional competition, participants from 17 universities showed off their work. In addition to ZJUI, other teams included Virginia Tech, Washington University, Purdue University, and Hong Kong University. Although only the top four teams move on to the international finals, fifth place was a tremendous first-time results for the ZJUI undergrads.

The RoboMaster Competition is a robotic competition for young engineers all over the world. It is jointly organized by DJI, the Central Committee of the Communist Youth League, the National Federation of Students, and the Shenzhen Government. This robot shooting competition is famous for its impressive audio-visual impact and tough competitive style. It has attracted the attention of hundreds of universities, nearly one thousand high-tech companies and thousands of technology enthusiasts around the world. The competition requires the participants to go beyond the classroom, form a team, and independently develop and produce a variety of robots. The competition focuses on the comprehensive practical engineering practice abilities of the team members. It integrates robot-related technologies such as machine vision, embedded system design, mechanical control, inertial navigation, and human-computer interaction. It combines engineering work with an X-sports environment for an intense, exciting set of events.

“Meta is the biggest dark horse in this international regional competition.”

Faced with high-intensity competition and many more experienced teams, Team Meta overcame a wide range of difficulties. Contest staff called them "The biggest dark horse in this competition." Meta showed themselves up to the tasks, matching the strong Fukuoda team. In a suspenseful match, they persevered in the last few seconds in the game against the Xi'an Jiaotong-Liverpool team. The editorial liaison officer pointed out that "Zhejiang-UIUC did not lose their mind in the high-frequency game, from which they can be definitely viewed as a strong team." The organizing committee acclaim the robots developed by Meta, and awarded them with the team design award for their sentinel robot.

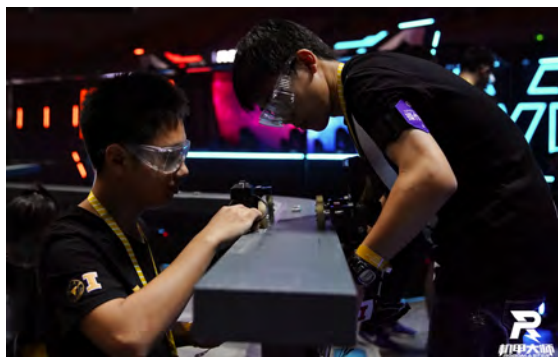
The competition semifinal match against a veteran University of Washington team was the epitome of Meta’s hard work. After being defeated by a fierce attack from the U.W. team in the first round, team Meta adjusted their tactics in the second round to use a defense bonus and try out guerrilla tactics. They seized an opportunity while the opponents were reloading, and caused a lot of damage, ultimately winning. In the third and final round, the U.W. robot still had problems but ZJUI students were patient. They waited for the opponent to fall into the encirclement. In the end, team Meta won the third round, and the match, with a strong sweeping move that more than doubled the U.W. damage points.

Student Liu Zikai, who lead control efforts for team Meta, said, "Compared with teams that have gathered relatively strong technical prowess, we still have a lot of shortcomings. This game really needs technical prowess. We don't have many advantages, but we are not afraid of tigers. We don't have any burdens, but we work hard and never give up."

“We are familiar with one or two o'clock in the morning.”

For this competition, many ZJUI students have been preparing for more than a year. Because it is a new team, in addition to developing their robots from scratch, team members also need to deal with development, recruitment, and team management. Compared with mature teams that have been participating for many years, Meta’s workload is high. They sought to participate in 2018, but it was just too early.

Talking about the experience of more than a year in preparation, Meta’s captain Han Tianyi admitted that “It’s common for us to stay in the lab until one or two in the morning. At the beginning, security guards often came to us and ask why didn’t we go back to the dormitory by midnight, but gradually the they got used to our lab that is often active almost all night.” Because the college curriculum at ZJUI is full, team members must carve out spare time to complete their research, development, production, strategic deployment, team promotion, and other tasks. Almost all members chose to use their summer vacation period to facilitate discussion, research and development. Some key milestone deadlines conflict with ZJUI's midterm and final exam times. Despite these difficulties, the players try to balance learning and team activities. In the end, they were able to go from scratch to a significant success. Meta also differs from other teams in student level. The team is composed almost entirely of sophomore and a few junior students, while other teams consist mainly of juniors and seniors. Some teams even have graduate students. The embedded design programming content is not a classroom exercise and requires a higher level of expertise.



News in Pictures

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1. Welcome to the class of 2023
- 2.ZJUI Delegation Visits UIUC to deepen strategic cooperation
3. ZJUI Professors co-organized the International Bamboo Construction Competition 2019
- 4.The ZJUI delegation
- 5.ZJUI PhD candidate Qin receives student paper award at the 2019 National Conference on Microwave and Millimeter Wave

“Results are not the most important; participation and growth are key”

Team captain Han Tianyi says that "Results are not the most important part. Participation and growth are key. If I join a strong team that has a good foundation today, I may be able to get good results with less time and energy. However, if that is the case I think the benefits will not be as much as what I got with Meta. Just because we started from scratch, we all relied on our own exploration, and what we got is more valuable than a final result. I am very fortunate to be able to find students who share similar interests in college and will continue to love their robots and participate in such competitions."

In order to transcend their limitations, team Meta took the initiative to learn from two teams at Zhejiang University to study their experiences and get their help. Through the warm-up match in April, they met outstanding teams such as the Guangdong Taiwan Chung Cheng University and maintained communication with them. They have opportunities to exchange ideas with students from top universities. They saw the deep commitment of the American team and also the unique design ideas of the Fukuoka team. Internal discussion and communication between teams inspired them to formulate more interesting ideas and improve their communication and teamwork skills.

Liu Zikai said that "Compared to strong teams, we still have a lot of deficiencies, such as our robot performance needs to improve, the hit rate is too low, the stability is not good, and the tactics are not as good as the others..." Talking about their own shortcomings, Liu Zikai had plenty more to consider. He is ready for the team to learn, further strengthen their robots, improve team discipline and management, and try to be exceptional.

Han Tianyi and Liu Zikai also thanked those who have helped Meta: "For today's achievements, we must especially thank the team members for their persistent efforts and the two teams from Zhejiang University who are generous and helpful. We are grateful to our instructors including Vice Dean Ma Hao and Professors Cui Jiahuan, Yang Liangjing and Mark Butala. Thanks to Prof. Cui for attending our regular meeting every time and helping us to control the progress of the time. We sincerely thank all the instructors for their help and thanks to the institute for providing lab space and funding."

At the international regional competition, 19 out of the 30 team Meta members were able to attend the match. They gained valuable practical skills and strategic thinking through the competition by combining theory with practice. Let us express congratulations to all members of the Meta team, and hope that they will continue to seek excellence in 2020. 🇺🇸

