



CROSS SUMMER 2021 JOURNAL

Research Projects

- On May 14, 2021, Zhejiang University (Ninghai) Joint Research Center for Bio-based Materials and Carbon Neutral Development is Established with an initial funding of 10M RMB. CROSS Prof. Yan Xiao serves as the director of the Center.
- ZJUI CROSS Prof. Binbin Li, together with Prof. Yan Xiao and Prof. Tingju Zhu, et al., won a 2-year project funded by the President's Special Fund for Fundamental Research Funds.

CROSS Seminars

- Some perspectives on how engineering and mathematics could help each other by Prof. Qinghai Zhang
- Design and Construction of BULUCCI Global Trade Center by Chief Eng. Tie Wang, of Hongxiang Corp.
- Smart City Digital Twins: Toward More Sustainable, Resilient, and Livable Cities by Dr. John E. Taylor

On December 26th, the Annual Academic Conference 2020 of the International Campus, Zhejiang University, was held at the Campus' Multimedia Hall. CROSS prof. Cristoforo Demartino report his research "Main focus on investigating the dynamic behavior of structures under natural and man-made loading" on the conference. Over 300 participants were present at the Conference sharing academic accomplishments, promoting cross-disciplinary collaboration, and jointly witnessing the remarkable academic research achievements made by the International Campus since its inception.



- Flourishing Systems: Transforming the future of our built environment through smarter information by Dr. Jennifer Schooling

New member

- January 2021, Dr. Yasutaka Narazaki joined the CROSS as an Assistant Professor. His areas of research include: Structural engineering, Computer vision/Machine learning applications and Structural health monitoring.



“Fast and Furious”: The 2021 Int’l Concrete Dragon Boat Competition



On 14th June, the 2021 International Concrete Dragon Boat Competition was held on Haining International Campus of Zhejiang University. A total of 49 concrete dragon boats from over 24 universities, including Zhejiang Univ., Southeast Univ., Tianjin Univ., Southern Univ. of Science and Technology, Dalian Univ. of Technology, Southwest Jiaotong Univ., Xi'an Jiaotong-Liverpool Univ., Nottingham Univ. Ningbo, etc., gave a dazzling performance via the fusion of concrete technology and traditional Chinese culture.

Dragon Boat Festival

The competition consists of four parts: hull testing, appearance display, straight-line battle racing, and the evaluation process which includes obstacle racing, presentations and research papers. The competition, which combined professionalism, culture, entertainment, collaboration and innovation, aimed at disseminating traditional Chinese culture, promoting international exchanges, reflecting the progress of concrete research and construction technology both at home and abroad, enhancing the comprehensive ability of university students in material and structure design, analysis and calculation, artistic design, automatic control applications and interdisciplinary collaboration.



After the Competition

There were 1 special prize, 3 first prizes, 6 second prizes and 10 third prizes as well as 9 individual prizes, such as Technical Challenge Prize, Best Design Prize, International Friendship Prize and Honorable Mention Prize. The special prize went to the “Rui Long” team from Xi'an University of Architecture and Technology (XAUAT). Student competitions should be interesting and entertaining, and of course dragon boats are aesthetically appealing. Much to my delight, candidates were remarkably passionate and enjoyed this competition very much. In this process of trial and error, candidates’ imagination and creativity were further stimulated,” said XIAO Yan, director of the Organizing Committee of the 3rd International Concrete Dragon Boat Competition and a professor from the ZJU-UIUC Institute. “This year, we introduced more technology into the competition to make it more interdisciplinary, such as new energy, AI technology, and UAV. We also expect more teams can join this competition next year to bring us more brilliant ideas and breathtaking innovations.”





online discussion with Dr. Jennifer Schooling

CIRCLE Distinguished Lecture

On July 26th, Zhejiang University and the University of Illinois at Urbana-Champaign co-hosted the first online presentation of the CIRCLE distinguished lecture series: "Flourishing Systems: Transforming the future of our built environment through smarter information"

The lecture series is hosted by CIRCLE (Center for Infrastructure Resilience in Cities as Livable Environments), a joint research Center of Zhejiang University-University of Illinois at Urbana-Champaign. Co-sponsored by Professor Yan Xiao, Program Director for Energy, Environment and Sustainable Systems Sciences, ZJUI, and Professor Bill Spencer, the Nathan M. and Anne M. Newmark Endowed Chair in Civil Engineering, UIUC, ZJUI Assistant Professor C. Demartino and M. Butala, UIUC Professor Y. Ouyang, and Assistant Professor Z.J. Zhao, and J. Yan are members of the organizing committee. The CIRCLE Distinguished Lecture Series is intended to provide opportunities for faculty and students to meet and interact with internationally renowned experts in the events

Carbon Neutral

Prof. LI Binbin received the President's Special Fund for Fundamental Research Funds for the Central Universities

Recently, ZJUI Assistant Professor (Civil Engineering) Binbin Li, together with Professor Yan XIAO and Associate Professor Tingju Zhu, etc., won a 2-year project funded by the President's Special Fund for Fundamental Research Funds for the Central Universities. The project titled "Bio-based Materials and Engineering Application for Carbon Neutrality" aims to build an interdisciplinary platform for research on bio-based materials and corresponding engineering applications. Besides the professors in ZJUI, the project team consists of researchers from Zhejiang University-University of Edinburgh Institute, College of Civil Engineering and Architecture, College of Biosystems Engineering and Food Science and International Business School.

Carbon neutral target

The project will assess the demand for water and land resources during the production of bio-based materials, investigate its influence on the ecological environment, study and improve their mechanical properties, and optimize their practical utilization based on the temporal and spatial constraints. In addition, the project will conduct the research on the long-term monitoring on the structural performance of bio-composites, and the intelligent design, manufacture, and assembly of modern bamboo structures, as well as the supply chain and its sustainability of biomass engineering materials.



CROSS

**New
Member**

Yasutaka Narazaki

Yasutaka Narazaki received his B.S. and M.S. in the department of Civil Engineering at the University of Tokyo, Japan, and then received Ph.D. in 2020 from the department of civil and environmental engineering at the University of Illinois at Urbana-Champaign, USA.

His research interests are directed toward resilient and sustainable civil infrastructure systems through innovations in structural inspection and monitoring strategies. Based on his technical background in structural engineering, computer vision, machine learning/artificial intelligence, and robotics, he has performed research in the following three categories: (1) autonomous vision-based inspection of reinforced concrete (RC) railway bridges for rapid post-earthquake response and recovery, (2) development, quantitative performance evaluation, and optimization of computer vision-based dense displacement and strain measurement strategies, and (3) vibration-based structural system identification and damage assessment.

His approach to research is characterized by interdisciplinary and international collaborations: he has worked with researchers in civil engineering, computer science, and robotics fields, as well as researchers and practitioners from China, USA, and Japan. He is expanding his research and collaborations to eventually develop a city-scale autonomous inspection/monitoring solution that can leverage all available sensors (e.g. cameras and accelerometers), sensing platforms (e.g. robots), and other prior knowledge (e.g. finite element models and building information models) under circumstances that change constantly with time and place.



CROSS SEMINARS

On April 20, 2021, Prof. Yan Xiao, Member of Center for Research On Sustainable Systems (CROSS), ZJU-UIUC Institute, invited Chief Eng. Tie Wang, of Hongxiang Corp to give a seminar at the International Campus of Zhejiang University. The seminar is CEE Open Lecture: Design and Construction of BULUCCI Global Trade Center.

The lecture attracted more than 30 undergraduate and graduate students. After the speech, Wang had a heated discussion with the students. In the future, Hong Xiang Group will carry out more cooperation and internship base signing with international Campus of Zhejiang University.



On June 16, 2021, Prof. Tingju Zhu, Member of Center for Research On Sustainable Systems (CROSS), ZJU-UIUC Institute, invited Prof. Qinghai Zhang, Professor of Computational Mathematics in Zhejiang University to give a seminar at the International Campus of Zhejiang University. The theme of the seminar focused on synergies between engineering and mathematics.



CIRCLE Distinguished Lecture

On August 11 (Beijing time), Zhejiang University and the University of Illinois at Urbana-Champaign jointly hosted the second online lecture of the CIRCLE Distinguished Lecture Series: **Smart City Digital Twins: Toward More Sustainable, Resilient, and Livable Cities** by Dr. John E. Taylor from Georgia Tech.

The lecture attracted more than 260 scholars and experts from 17 countries around the world. After the lecture, Dr. TAYLOR had a full exchange and in-depth discussion with the online audience

The Center for Infrastructure Resilience in Cities as Livable Environments is one of three research themes supported by the joint Dynamic Research Enterprise for Multidisciplinary Engineering Sciences (DREMES), established between the University of Illinois at Urbana-Champaign (UIUC) and Zhejiang University (ZJU). The CIRCLE Distinguished Lecture Series is intended to provide opportunities for faculty and students to meet and interact with internationally renowned experts in the events. Please visit for more information: <https://circle.cce.illinois.edu/>

Civil Engineering To build a Sustainable future

7th National Undergraduate Engineering Training Integration Ability Competition

On January 15th, in the 7th Zhejiang College Students Comprehensive Ability Training of Engineering held in Zijingang Campus of Zhejiang University, 9 civil sophomores coming from 3 teams from ZJUI, won the first, second and third place respectively in the bridge structure design project of "Smart +" track intelligent logistics transportation competition. Wang Yiyi, Li Zitong and Ruan Wenhao's group won the first place in the competition with the maximum load ratio of 799g bridge bearing 139.5kg. Tang Zheyi, Xu Qin, Wang Haowei team won the second place; Shen Yang, Cheng Haojia and Yan Xiaoyu won the third place, and Cristoforo Demartino, assistant professor and researcher of ZJUI, served as the instructor of the three teams. It is reported that the team that won the first prize will represent Zhejiang University to participate in the Zhejiang Provincial Competition in April this year.

2021 American Society of Civil Engineers

The 2021 ASCE Mid-Pacific Student Conference, organized by the American Society of Civil Engineers (ASCE), was held online from April 15 to April 17. ZJUI Civil Engineering Student Xiaoyu YAN won the runner-up prize, under the guidance of ZJUI Adjunct Faculty Dr. Ryan P. Flanagan.



WANG Yiyi, LI Zitong,
RUAN Wenhao Group

YAN Xiaoyu, XU Peiyao

Future Communities with Intelligent Transportation Systems



The main part of the forum ended with a round table discussion. Mr. Jiahe Jin, director of big data development center of Zhejiang Province, Ms. Hongling Wu from Hangzhou Bureau of Planning and Natural Resources, Ms. Wei Liang from Shanghai Fudan Institute of Planning and Architecture Design, Prof. Qiang Yang, Dr. Chao Wu, and Dr. Simon Hu were invited to join the discussion and shared their thoughts on hot issues and the potential applications of their research in future community construction.

On May 22nd, the forum themed “Future Communities with Intelligent Transportation Systems” was successfully held in the International Campus, Zhejiang University. This forum was jointly organized by Zhejiang University-University of Illinois at Urbana-Champaign Institute (ZJUI), School of Public Affairs of Zhejiang University, International Business School of Zhejiang University (ZIBS), Center for Balance Architecture of Zhejiang University, and Intelligent Transportation Engineering Research Center in Zhejiang. This forum was strongly supported by ZJU Virtual Lab for Computable Digital Transport, Future Mobility Lab, Research Center for Computational Social Sciences, Advanced Electrical International Research Center, and Zhejiang Computer Society.



This forum focuses on intelligent transportation systems, future communities, data science, and other related fields, aiming to promote the implementation of big data, Artificial Intelligence (AI), and Internet of Things (IoT) in the future community construction, as well as deeply explore the digital value of urban transportation.

Prof. Erping Li, vice dean of International Campus, ZJU, and Prof. Hao Ma, vice dean of ZJUI, delivered opening remarks respectively. Prof. Erping Li briefly introduced the education and overall development of the international campus. He said that the international campus has always encouraged interdisciplinary development, and that we’ve built a solid research foundation in the intelligent transportation field. He warmly welcomed more scholars to join us, adhering to innovation-driven development, and achieving breakthroughs together. After that, Prof. Hao Ma introduced ZJUI in terms of research, development, and educational achievements. He expounded upon the strategic layout and activities of ZJUI in building a sustainable society and expressed an ardent welcome for experts and scholars attending the forum.



"NINGHAI County would do its utmost to develop green buildings and biomass materials with the greatest sincerity and efforts, and provide a first-class environment and quality services for the cooperation."

-Wang Junhai

Regional Cooperation Research Center for Carbon Neutral Development is Established



LI HANYING AND YANG ZUAN SIGNED A COOPERATION AGREEMENT ON BEHALF OF BOTH PARTIES TO LAUNCH THE ZJU (NINGHAI) JOINT RESEARCH CENTER FOR BIO-BASED MATERIALS AND CARBON NEUTRAL DEVELOPMENT

On the afternoon of May 14, the signing and unveiling ceremony of ZJUI's first Regional Cooperation Research Center, the Zhejiang University (Ninghai) Joint Research Center for Bio-based Materials and Carbon Neutral Development, was held in Ninghai, Zhejiang Province. Prof. Li Hanying, Acting Vice Dean of ZJUI, Prof. Xiao Yan, Director of the Program for Energy, Environment, and Sustainable Systems Sciences, Wang Junhai, Standing Committee Member and Executive Vice Mayor of Ninghai County, Yang Zuan, Vice Mayor of Ninghai County, Wang Jianhe, Academician from Ningbo China-Canada Institute of Low Carbon New Technology Co. and others attended the ceremony. Ge Renyuan, director of the county admin office, presided over the ceremony. The two sides signed a cooperation agreement to establish the ZJU (Ninghai) Joint Research Center for Bio-based Materials and Carbon Neutral Development, and held an unveiling ceremony. In the future, the two sides will carry out industry-university-research cooperation.

in basic and applied research on biomass materials, promotion and application of biomass materials in rural and urban construction, policy planning, etc. to create a mutual win-win mechanism, together contribute to the goal of carbon neutrality. The center will first operate for three years with an initial funding of 10M RMB.

Prof. Yan Xiao, ZJUI, serves as the director of the joint research center. He is one of the pioneering experts who systematically studied and developed the modern bamboo structures and earned international reputation. Relying on this university-local cooperation platform, Prof. Xiao will lead his team to offer strong intellectual support for the development of biomass material industry in Ninghai County, provide effective guidance for the landing and transformation of scientific research results of Zhejiang University, and make a positive contribution to the realization of the national carbon neutral goal.





浙江大学
ZHEJIANG UNIVERSITY



UNIVERSITY OF
CAMBRIDGE

Theme : Smart Logistics

Zhejiang University Global Partnership Fund – University of Cambridge

Recently, CROSS prof. Simon Hu's research "Smart Logistics" is funded by Zhejiang University Global Partnership Fund (400,000 RMB Yuan for two years) and the project "Digital Technology Enabled Smart City Research: Digital finance, Sustainable Road Freight and Digital Management" led by Prof. Shenglin Ben Dean of International Business School & Academy of Internet Finance. "Smart Logistics" is the one of three themes from Collaboration between ZJU and the University of Cambridge.

The propose of promote interdisciplinary research across colleges in the field of digital technology, and jointly promote the coordinated development of government, industry, university, research and innovation in the third-party market in the field of smart city.

RESEARCH FOCUS

- Monitoring of truck fuel consumption and emission
- Intelligent fleet management



Dr. Simon Hu



PhD student Siqi Shu



PhD student Anke Ye

PROJECT SUMMARY

Perform detailed measurement of representative road freight operations in China, and collect both vehicle-based and logistics operation data. The Centre for Sustainable Road Freight at the University of Cambridge will share their knowledge of measuring and evaluating road freight operations with their partner institutes at Zhejiang University. Joint research efforts for measuring, modelling and understanding the performance of freight vehicles and road transportation systems in China will be expanded. Bilateral exchange of academics between China and the UK will be carried out. Joint workshops and seminars will be organized. It is expected that a number of high-quality joint publications will result from the project.

Please visit Simon Hu's TSELab to read more: <https://zju.tselab.org/en/>



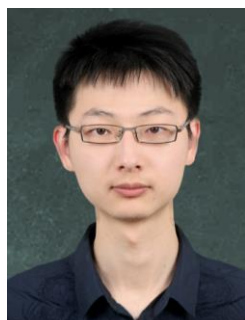
WELCOME TO CROSS 2021



Xuguang Wang

Postdoc, Team of Prof. Cristoforo Demartino

Xuguang received his Ph.D. degree in Structural Engineering from the University of Toronto in 2021. During his doctoral study, he has developed the hybrid simulation methods for structural fire tests and carried out the first large-scale fully automated hybrid fire simulation for a steel column. He is now a postdoctoral researcher at ZJUI. Aligning with the research goal of CIRCLE, one of the three ZJU-UIUC JRC projects, his research focuses on increasing the resilience of cities, in particular, by developing the digital twin-based framework for infrastructure monitoring and management.



Ke Ma

Research Assistant, Team of Prof. Yan Xiao's Lab

M.S., Structural Engineering, Mechanics and Materials, UC Berkeley, 2021. Ke Ma is working on digital design and smart manufacturing of structures based on Building Information Modeling and Data Science. His typical work features optimized modern bamboo grid-shell and other space structures.



Qichen Liu

Research assistant, Team of Prof. Yan Xiao's Lab

Her research focuses on low energy building, mainly including the use of cross laminated bamboo and timber material and solar energy to reach lower carbon emissions. Her research is based on BIM platform, building up the model of each kind of element to realize parametric design of the building.



Yiding Wang

Research assistant, Team of Prof. Tingju Zhu

He is committed to future water resource management in China. He studies and tries to correct CMIP6 simulation results which are used as a reference. He also studies the AR6 Synthesis Report of the IPCC.



Hua Zeng

Research assistant, Team of Prof. Cristoforo Demartino.

Hua focuses on the structural health monitoring, modal identification and full aeroelastic model. He investigates a full aeroelastic model design and modal test for Tacoma bridge in natural wind. Now, Hua is working on the cable of galloping and static divergence.

SELECTED PUBLICATIONS 2021

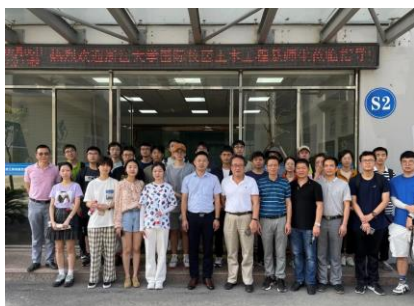
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CROSS TEAMS SNAPSHOTS 2021



Prof. Xiao's SRTP team meeting



ZJUI CE students visited Haiyan



Ninghai conference



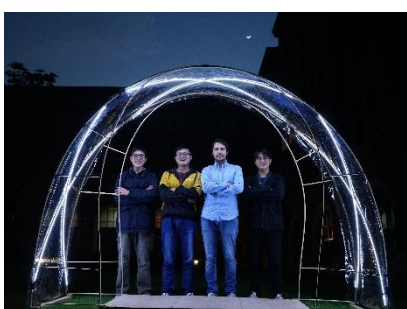
CROSS members meeting with HX



ZJUI CE students visited HX



CROSS Carbon Neutral workshop



Team Prof. Cristoforo



Team Xiao's Study tour



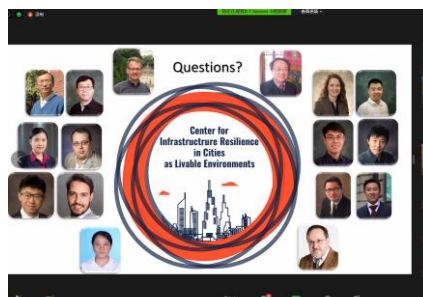
Visited ZJU Ninghai Center



2021 ICDBC



Intelligent transportation workshop



CRICLE online workshop



微信搜一搜

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