

Report about 2022 Virtual Summer School on Resilient Cities

Introduction

The summer school was jointly organized by ISPRS Student Consortium (ISPRS SC) and Beijing University of Civil Engineering and Architecture (BUCEA), mainly focus to the methods and technologies on Resilient City. Experts from ISPRS and international universities were invited to give lectures on innovative practical and methodological knowledge and skills on architectural and urban planning, engineering technology, mapping and remote sensing, intelligent construction, robotics engineering, construction management. In addition to the regular courses, a variety of cultural practice activities were arranged. The summer school promoted the multi-cultural, multi-disciplinary and multi-level communication among students from different countries and regions.

There were 228 students joining us who came from 66 universities, 29 countries such as China, Russia, Britain, Nigeria, Nepal, India, Philippines, Greece, Kenya, Sri Lanka, and so on.



In this 2022 Virtual Summer School Program, we had many international students participated which shows the evidence that BUCEA has developed an important platform for international communication. For example, the participated universities including Auburn University, University of Lagos, University of Zimbabwe, Aristotle University of Thessaloniki, University of Nairobi, etc. In addition, students from the Belt and Road Architectural University International

Consortium (BRAUIC) and the Education Federation of Outstanding Engineers in Architecture and Civil Engineering also participated into the program.

2022 Virtual Summer School

The 2022 Resilient Cities International Summer School Online is organized by Beijing University of Civil Engineering and Architecture (BUCEA) and the Education Federation of Outstanding Engineers in Architecture and Civil Engineering.

The program will cover architecture and planning, civil engineering, environmental engineering, construction management, and robotics engineering, etc. To equalize the frontier knowledge and development trends of related disciplines, it aims to provide a platform for students and young scholars to communicate academically and culturally through a series of high-level professional lectures, academic discussions and cultural experiences. Welcome to attend or advise.



Aims and Objectives

- Global Engagement**
Expand the strategic vision of BUCEA in the world and broaden the resource courses from abroad to BUCEA in the same time.
- Well-designed courses and teachers**
Provide courses on a global basis or to look for majors in BUCEA to create a wide and diversified academic atmosphere.
- Innovative education model**
World-class teaching methods to improve the participation and research ability for students/young scholar.

Agenda


Notes: All times in the agenda is Beijing Time (UTC+8). A link ahead of GMT.

No.	Initiator	Subject	lecturer
July 25 (Monday)			
Morning: 9:00-10:30 AM, Welcome Ceremony of BUCEA			
01001-0103	Open to Leaders & Women Address	Prof. Luca M. Fabris	Italy
01001-0104	01001-0105	01001-0106	01001-0107
July 26 (Tuesday)			
Morning: 9:00-10:30 AM, Welcome Ceremony of BUCEA			
02001-0201	02001-0202	02001-0203	02001-0204
July 27 (Wednesday)			
Morning: 9:00-10:30 AM, Welcome Ceremony of BUCEA			
03001-0301	03001-0302	03001-0303	03001-0304
July 28 (Thursday)			
Morning: 9:00-10:30 AM, Welcome Ceremony of BUCEA			
04001-0401	04001-0402	04001-0403	04001-0404
July 29 (Friday)			
Morning: 9:00-10:30 AM, Welcome Ceremony of BUCEA			
05001-0501	05001-0502	05001-0503	05001-0504

BUCEA International Summer School Profile


As the first and only comprehensive university in Beijing, the Beijing University of Civil Engineering and Architecture (BUCEA) was jointly sponsored by the People's Government of Beijing Municipality and the Ministry of Education and Scientific Research of China. BUCEA is made to create top-quality leading talents.


BUCEA has set up the Resilient Cities International Summer School Online and implemented recently successful activities, including its partnership with 57 universities and research institutions across 35 countries and regions for strategic resource integration and joint research. The university has received the initiative of establishing the Resilient Cities and Smart Architecture University Educational Consortium, composed of leading Chinese and international academic institutions, offering thousands of Chinese and international students and scholars from 150+ foreign countries to receive training, exchange and research opportunities.



From 2016 to 2021, BUCEA has successfully held the International Summer School. A total of more than 900 Chinese and foreign students and scholars from more than 50 domestic and foreign universities gathered together to study.

BUCEA is dedicated to the mission of nurturing talents who possess the qualities of a top-notch technical talents, building both basic disciplines, innovative and creative capacities in China with world-class reputation and aims emphasis on architectural education.






Resilient Cities

Days: July 25th -29th , 2022

Institutions
Beijing University of Civil Engineering and Architecture
International Federation of Professional Engineers and Technicians

Domains

- Architecture and Planning
- Civil Engineering
- Environmental Science and Engineering
- Construction Management
- Robotics Engineering

Lectures

There were 14 lectures assigned in the summer school program as shown in the following table:

Table 1 Topics and Speakers Information

LECTURE 1	An Outlook from Europe on Sustainable and Resilient Cities. What We Learnt and Future's Strategies Prof. Luca Maria Francesco Fabris, Politecnico Di Milano, Italy
LECTURE 2	3D Visual Perception and its Applications in Urban Developments Dr. Mozhdeh Shahbazi, Natural Resources Canada, Canada
LECTURE 3	Resilient Cities Prof. Daniela Deutsch, NewSchool of Architecture & Design, USA
LECTURE 4	Visioning sustainability on urban-scale mega-projects Prof. Stuart Green, University of Reading, UK
LECTURE 5	Development and Application of Noncontact Sensing Solutions for Built Environment Prof. Peng Sun, University of Central Florida, USA

LECTURE 6	Stabilized or Surface-Modified Nanomaterials for in situ or onsite Remediation of Contaminated Soil and Groundwater: From Bench to Field Prof. Dongye Zhao, Auburn University, USA
LECTURE 7	Nanofluids-Inception and Development Prof. Muhammad Ramzan, Bahria University, Pakistan
LECTURE 8	Resilient Cities: Dynamic Systems of Green Open Spaces Prof. Mengyixin Li, BUCEA, China
LECTURE 9	Introduction of ISPRS Student Consortium Laxmi Thapa, ISPRS
LECTURE 10	Advanced Robotics and Industrialized Building Systems Dr. Xiaowei Shan, BUCEA, China
LECTURE 11	Spatio-temporal Analysis for Human Urban Activities Prof. Wei Huang, Tongji University, China
LECTURE 12	Sensing urban dynamics with big data Prof. Shishuo Xu, BUCEA, China
LECTURE 13	Sustainability Across Different Scales: The Foundation of Resilient Cities Prof. Emmanuel Essah, University of Reading, UK
LECTURE 14	Reality Capture for Built Environment and Heritage BIM Prof. Junshan Liu, Auburn University, USA

The lecture abstracts and speakers' bio. are shown below.

Lecture 1 An Outlook from Europe on Sustainable and Resilient Cities. What We Learnt and Future's Strategies

Abstract

It has been more than 40 years since the concept of urban ecology has been applied to landscape and urban design in Europe. The lecture introduces some of the most relevant examples, discussing the passage from theory to practice and the evolution of the concept of 'green' and 'ecology' to 'sustainable' and then to 'resilient', trying to interpret the following strategy to be applied to reach new paradigms of 'healthy' and 'resistant' strategies for the cities of tomorrow.

Biography

Luca Maria Francesco Fabris, journalist and architect, obtained a PhD in Architectural and Environmental Technology and a Master in Urban Planning and Environment. He is a Beijing University of Civil Engineering and Architecture Distinguished Expert and Associate Professor in Architectural Technology and Environmental Design at the Politecnico di Milano (Polimi - Italy) Architecture and Urban Studies Department. Fabris has taught since 1997 at the Polimi's AUIC School's MS in Architecture and MS in Landscape Architecture – Landscape Heritage, serving as a referent for several Erasmus+ agreements in Europe and various exchange and Double Degree programs in China, Canada, and Japan. He is writing for the international architectural reviews The Plan and ABITARE and is Editorial Director of the Italian technical architectural magazine YouBuild, Scientific Director of the Environscapes book series published by Maggioli Editore (since 2008). Visiting professor at European, American and Asian Universities, Fabris focuses on research related to contemporary built environment, resilient and sustainable cities, and landscape metabolism. Editor and scientific referee of various university publications, Fabris has written several books and essays about the above subjects and serves as a specialized journal reviewer. More on www.environscape.eu.



2022 Virtual Summer School on Resilient Cities

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UNIVERSITÀ POLITECNICA DI MILANO

欧洲对可持续和韧性城市的展望：
我们学到了什么以及未来的策略

Lecture II: An Outlook from Europe on
Sustainable and Resilient Cities.
What We Learnt and Future's Strategies

Prof. Luca Maria Francesco Fabris
米兰理工大学副教授，意大利
Professor, Politecnico Di Milano, Italy

7.25 20:00
北京时间

Lecture 2 3D Visual Perception and its Applications in Urban Developments

Abstract

In this lecture, first we will learn what 3D visual perception means, how it can be achieved, and what technologies, sensors and platforms are involved in it. Next, we will look into some sample applications of this technology in different aspects of urban developments, including land-cover mapping, structural health assessment, traffic surveillance, monitoring urban parks, city tourism, and sustainable energy.

Biography

Mozhdeh Shahbazi (PhD, PEng) holds a BSc degree in survey engineering with a minor in civil engineering, MSc in photogrammetry engineering, and PhD in remote sensing. Her expertise is in the areas of computer vision, deep learning, photogrammetry, sensor–integration and self–calibration, and robot vision. In 2022, she joined the government of Canada in the ministry of Natural Resources as a computer vision and photogrammetry scientist. She is currently developing automated techniques for geo-referencing and processing historical images to extract various statistics related to the natural resources of the country.

As part of her voluntary activities, she has been a secretary of the International Society of Photogrammetry and Remote Sensing, vice president of the Canadian Remote Sensing Society, associate editor of Canadian Journal of Remote Sensing, and co-editor in chief of Journal of Unmanned Aerial Vehicles and associate editor of Drone Systems and Applications. She has been an active participant and organizer of STEM outreach programs such as NSERC Chairs for Women in Science and Engineering, Women in Data Science, and Cyber Mentor.



Lecture 3 Resilient Cities

Abstract

For the foreseeable future worldwide, urban population will continue to grow. By some estimates, 90% of this growth will occur in urban areas of less developed countries. While people continue to migrate into urban areas, we have to ask ourselves: How do cities and those that make them respond? What are the implications? How does this affect agricultural land? How and when will renewable resources meet the challenge? Is it possible to make a city center CO2 neutral? How do landscapes respond? Our future depends on how we direct the growth of our cities and respond to the problems that will arise.

This lecture will frame some of the most pressing local and global threats that challenge the resiliency of the contemporary city, coupled with select forward thinking solutions, worldwide, and from students at the NewSchool of Architecture and Design.

Biography

Daniela Deutsch has been practicing and teaching Architecture for the past 20 years. She is currently the Head of Architecture Programs and Professor at the NewSchool of Architecture and Design in San Diego where she teaches Integrated Design Studio and Environmental Systems with a focus on an integrated approach to energy-efficient design. She currently serves on the Board for the San Diego Green Building Council. She holds a master's degree in architectural engineering from the Technical University of Darmstadt in Germany.



Lecture 4 Visioning sustainability on urban-scale mega-projects

Abstract

The presentation will explore the challenges of visioning sustainability on urban-scale megaprojects. The underlying perspective is shaped by the recognition that the material realities of sustainability are continuously shaped and re-shaped by the narratives that are mobilised. Sustainability leadership can therefore be construed in terms of the continuous projection of a coherent narrative of sustainability across different governance structures. Such narratives should be sufficiently flexible to engage competing definitions of sustainability while at the same time providing an overall sense of direction. Given that urban-scale mega-projects often extend over

several years (even decades) it is inevitable that priorities will change over time. Hence sustainability leadership narratives need to evolve accordingly whilst retaining the commitment of different stakeholder groups. The associated research focus therefore shifts from supposedly static 'critical success factors' towards the way the meaning of sustainability is continuously negotiated within and across different urban-scale governance structures.

Biography

Stuart is a Professor in Construction Management in the School of the Built Environment at the University of Reading. He worked as head of school for 7 years. He has over 30 years experience with research involvements relating to construction industry improvement, project management, building performance, innovation and recently sustainability. His research work is acknowledged internationally and published in top journals in construction and city field. He has won international reputation and works as the editorial board member for several top international journal. Prof. Green is now the chair of University of Reading Environment and Sustainability Committee. Prof. Green continue to be actively involved in consultancy with industry and research both in the UK and internationally.



2022 Virtual Summer School on Resilient Cities

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城市规模大型项目的
可持续性展望

Visioning sustainability on urban-scale
mega-projects

Prof. Stuart Green
雷丁大学教授，英国
Professor, University of Reading, UK

7.26 16:00
北京时间

Lecture 5 Development and Application of Noncontact Sensing Solutions for Built

Environment

Abstract

Sensors and sensing technology has been a driven force for smart cities. Dr. Sun will talk about three different study cases of smart sensing solutions in built environment.

In Session 1, he will talk about full-field strain mapping using developed smart skin sensor.

In Session 2, Dr. Sun will talk about the UAV application in smart city application.

In Session 3, Dr. Sun will talk about the computer vision-based measurement of utilization of public open spaces.

Biography

Dr. Sun is an Assistant Professor in Smart Cities in the CECE department at the University of Central Florida. He is a passionate researcher for smart sensors and sensing systems, in which he incorporates his scientific and engineering understanding of structures and people. He is particularly interested in combining knowledge in civil engineering and other disciplines (e.g. nanotechnology, computer vision, electrical engineering, and material science) to convert traditional structures into more intelligent systems with a “perception” of structures and surrounding environment.

2022 Virtual Summer School on Resilient Cities

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建筑环境非接触传感
解决方案的开发与应用

Development and Application of Noncontact
Sensing Solutions for Built Environment

Dr. Peng Sun
中佛罗里达大学助理教授, 美国
Assistant Professor, University of Central Florida, USA

7.26 20:00
北京时间

Lecture 6 Stabilized or Surface-Modified Nanomaterials for in situ or onsite Remediation of Contaminated Soil and Groundwater: From Bench to Field

Abstract

Remediation of soil and groundwater contaminated with chlorinated solvents and toxic metals/metalloids has been a major environmental challenge for decades. Yet, cost-effective and sustainable in situ or onsite remediation technologies remain lacking. Through two decades of research and field demonstrations, the Auburn University research team has developed a strategy to synthesize various stable and soil-deliverable nanoparticles using low-cost and "green" polysaccharides, such as starch and carboxymethyl cellulose (CMC), as a stabilizer. The stabilizers can facilitate controlling the size, delivery and transport of the nanoparticles. This presentation overviews the evolution and applications of various stabilized nanoparticles for in situ or onsite immobilization of metals/metalloids in soil and groundwater, including zero-valent iron (ZVI) and sulfidated ZVI nanoparticles for reductive immobilization of redox active

contaminants such as TCE, U(VI), Tc(VII), and Cr(VI), FeS for adsorptive immobilization of Hg(II), Pb(II) and Cd(II), and Fe-Mn binary oxides for As(V) and As(III).

Biography

Dr. Zhao is a professor and the Engineering Alumni Endowed Chair of Environmental Engineering at Auburn University. Starting August 16, 2022, he will serve as professor and the chair of the Department of Civil, Construction and Environmental Engineering at San Diego State University. Dr. Zhao has served as PI or Co-PI for ~50 research projects totaling ~\$9 million. He and co-workers have published more than 220 SCI-indexed journal papers, one textbook, 15 book chapters, and 250+ other publications. In addition, he has delivered 135+ invited or keynote presentations/lectures worldwide, and has been granted 7 U.S. patents. His work has been cited ~16,000 times with an h-Index of 64 according to the Google Scholar. He is included in both the Clarivate World's Top 1% Scientists and the Stanford World's Top 1% Scientists.

2022 Virtual Summer School on Resilient Cities

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International Society for Photogrammetry and Remote Sensing

稳定铁基纳米材料在污染土壤和
地下水原位修复中的应用：
从实验到现场

Stabilized or Surface-Modified Nanomaterials
for in situ or onsite Remediation of Contaminated
Soil and Groundwater: From Bench to Field

Dr. Dongye Zhao
奥本大学教授，美国
Professor, Auburn University, USA

7.26 21:00
北京时间

Lecture 7 Nanofluids-Inception and Development

Abstract

Nanofluid is a blend of suspended metallic nanoparticles and some customary fluid say water. The thermal performance of the base fluid is dramatically augmented with the inclusion of metallic nanoparticles. The application of nanofluids has revolutionized modern engineering procedures especially in manufacturing of small gadgets. The nanofluid has gained great significance in the field of nanotechnology as literature shows the attempts made by scientists and researchers to discover the numerous characteristics of nanofluids.

Biography

Muhammad Ramzan is a senior Mathematician at Bahria University, Islamabad, Pakistan. He has published around 125 ISI Indexed papers in renowned International Journals. At present four PhD and three MS students are working in his lab. Fourteen MS students have successfully completed their research work with him. He has received “Best Paper” and “Best Presenter” Awards in Antalya, Turkey, (2018) and Kuala Lumpur, Malaysia, (2017) respectively. He was also visiting Professor at Jiangsu University, China and Sejong University, Korea. He is also recipient of different projects in the PI and Co-PI position.



The slide features a purple background with a portrait of Dr. Muhammad Ramzan on the left. At the top, it reads "2022 Virtual Summer School on Resilient Cities" and includes logos for "isprs" and "IISG". The main title is "纳米流体的起源和发展" (Origin and Development of Nanofluids) with the subtitle "Nanofluids-Inception and Development". A blue banner at the bottom identifies the speaker as "Dr. Muhammad Ramzan" and lists his affiliation: "伊斯兰堡巴利亚大学教授, 巴基斯坦" (Professor, Bahria University, Pakistan). A white oval in the bottom right corner displays the date and time: "7.27 15:00" (北京时间).

Lecture 8 Resilient Cities: Dynamic Systems of Green Open Spaces

Abstract

Contemporary cities demand different approaches to design, planning, management, and maintenance, which explicitly provide the capacity for resilience in the face of long-term adaptation to change and for ecological, cultural and economic viability. In this context, contemporary urban landscapes are regarded as complex and dynamic systems in which green open spaces are constantly perceived, organized and comprehended in the field of urban planning and landscape architecture. Under the demand of green, low-carbon and sustainable development, the lecture will take North America, Europe and China as examples to systematically elucidate the changes to resilient urban systems brought by green open spaces and post-industrial landscapes during the transformation from industrial to post-industrial societies from the perspective of "Nature – Parks – Greenways". Regarding the resilient urban systems, there are two essential scientific methods of green structures and ecological structures which will be explained accordingly from both a quantitative and qualitative perspective.

Biography

LI Mengyixin, associate professor in the School of Architecture and Urban Planning, Beijing University of Civil Engineering and Architecture (BUCEA), the young scholar of Beijing Overseas Talents Program, received her Ph.D. in Landscape Architecture, Technical University of Munich (TUM), Germany. She is the committee member of Beijing Overseas Talents Association, the member of History and Theory Committee and Territorial Landscape Committee of Chinese Society of Landscape Architecture, the member and secretary of Cultural Landscape Committee of Chinese Society of Landscape Architecture, the member of 'China Urban Landscape Lab', TUM

and the leading member of the EU Collaborative Classes instructional team of Politecnico di Milano (POLIMI), Italy. She is mainly engaged in the research and teaching of green open space, cultural landscape, and post-industrial landscape.



The banner features a purple background with a portrait of Dr. Mengyixin Li on the left. At the top, it reads '2022 Virtual Summer School on Resilient Cities' and includes logos for ISPRS and BUCEA. The main title in Chinese is '韧性城市：绿色开放空间的动态系统' (Resilient Cities: Dynamic Systems of Green Open Spaces). Below the portrait, her name '李梦一欣 Dr. Mengyixin Li' and affiliation '北京建筑大学副教授，中国 Associate Professor, BUCEA, China' are listed. A circular badge on the right indicates the date and time: '7.27 16:00 北京时间'.

Lecture 9 Decoding Introduction of ISPRS Student Consortium

Abstract

The International Society for Photogrammetry and Remote Sensing Student Consortium, (ISPRS SC) was established in 2004. As the official representation of the students and the youth to ISPRS, it works directly under the ISPRS Council. The main purpose of the ISPRS SC is to link students, young researchers and professionals in different countries, who are interested in photogrammetry, remote sensing and spatial information sciences, by providing a platform for exchange of information and organizing student-specific events and other activities that integrate students and the youth more effectively into ISPRS activities. The members of the organization are students and young professionals/researchers under the age of 35, who share the same interest in photogrammetry, remote sensing and geospatial information sciences.

Biography

Laxmi Thapa completed Master degree in Geospatial Technologies through Erasmus Mundus joint master degree programme in NOVA IMS, Portugal, University of Muenster, Germany and Universitat Jaume I, Spain and received Bachelor's degree in Geomatics Engineering from Kathmandu University, Nepal. Currently, she is working as a Survey Officer in Survey Department of Government of Nepal. Her research interests include application of AI in earth observation & geospatial technologies, LIDAR technology and UAV Photogrammetry.



Lecture 10 Advanced Robotics and Industrialized Building Systems

Abstract

Robot science fiction vs. robot reality; Artificial intelligence and robotics; Robotic mechanical system;

Advanced robotics and industrialized building systems at the School of Mechanical-Electronic and Vehicle Engineering; Frontier development of robotics.

Biography

Dr. Xiaowei Shan is associate professor of Beijing University of Civil Engineering and Architecture, who is also distinguished scholar of Beijing Overseas Talent Aggregation Project. Shan obtained her PhD degree from McGill University, Canada. She worked as a former Postdoctoral researcher at the robotics laboratory at the Ecole Polytechnique of Montreal. Her research interests include: robotics, micro-electro-mechanical systems (MEMS), dynamics and control of mechanical systems.



Lecture 11 Spatio-temporal Analysis for Human Urban Activities

Abstract

A massive influx of population into urban areas has boosted urbanization. It, on the one hand, has stimulated rapid regional economic growth. On the other hand, it has also caused various urban issues, which plays a negative role in urban sustainable development. A better understanding of complex urban human activities is key to tackle such urban challenges and is an effective way to advance urban sustainable development. Therefore, it is vital to study urban human activities to further uncover and better understand its patterns. The talk reports data-driven methods and applications for urban human activity modeling.

Speaker's Biography

Dr. Wei Huang is a Professor in the College of Surveying and Geo-informatics at Tongji University, China and Associate Editor for ISPRS IJGI. Prior to Tongji, he was a Planner at the Ministry of Transportation Ontario, Canada. From 2016 to 2018, he was a Postdoctoral Research Fellow in the GIScience research group at Heidelberg University in Germany. He received his PhD from the Department of Civil Engineering, Toronto Metropolitan University (formerly Ryerson University), Canada in 2016. His research interests include urban mobility, spatial analytics and GIScience.



Lecture 12 Sensing urban dynamics with big data

Abstract

This lecture covers the fundamentals and the latest research concerning monitoring urban dynamics based on big data. It begins by describing the key issues of sensing urban dynamics, and explores the opportunities and challenges of adopting big data for such research. Referring to the patterns reflected by big data, this lecture introduces the general workflow, a series of detection methods, experimental process, and evaluation techniques of sensing urban dynamics from the

event detection perspective. This lecture sheds light on situational awareness as well as urban management in resilient cities.

Biography

Dr. Shishuo Xu is an Associate Professor in the School of Geomatics and Spatial Informatics, Beijing University of Civil Engineering and Architecture, China. She received the B.Eng. degree in surveying engineering from China University of Mining and Technology, China in 2013 the Ph.D. degree in geomatics engineering from Ryerson University, Canada, in 2020. Her current research interests include geospatial data analysis, event detection using geosocial media data, and urban dynamics and smart city. Dr. Xu was a recipient of Canadian Association of Geographers - Ontario Division (CAGONT) Best Paper Award 2018, Beijing Overseas Talents 2020 and China Scholarship Council (CSC) International Cooperation Funding 2020.



Lecture 13 Sustainability Across Different Scales: the Foundation of Resilient Cities

Abstract

The seminar aims at providing thought provoking principles and concepts that

- Covers most of the issues typically encountered in the buildings sphere
- Covers many issues that are relevant to both developed and developing countries, and

- Can be considered in terms of the broad dimensions of social, environmental and economic.

Biography

Emmanuel is an Associate Professor in Sustainable Technologies in the School of the Built Environment at the University of Reading. He has over 15 years' experience with research involvements relating to energy conservation and management in building, optimising, and improving the use of photovoltaic (PV) systems, moisture transfer effects in buildings and most recently investigating the impact of biophilia on the indoor environmental quality. Through his research, he has worked with colleagues in China, Ghana, Spain, Portugal, South Africa, Botswana and Tunisia, amongst others.

The banner features a purple background with a portrait of Dr. Emmanuel Essah on the left. At the top, it reads '2022 Virtual Summer School on Resilient Cities' and includes logos for 'isprs' and 'UNIVERSITY OF READING'. The main title in Chinese is '不同尺度的可持续性：韧性城市的基础' (Sustainability Across Different Scales: the Foundation of Resilient Cities). Below this, the English title 'Sustainability Across Different Scales: the Foundation of Resilient Cities' is displayed. A blue bar at the bottom left identifies 'Dr. Emmanuel Essah' as an Associate Professor at the University of Reading, UK. A white oval on the bottom right shows the date '7.28' and time '16:00' in Beijing time.

Lecture 14 Reality Capture for Built Environment and Heritage BIM

Abstract

Reality capture techniques, such as LiDAR, 360-degree photography and photogrammetry, have been adopted by the Architecture, Engineering and Construction (AEC) industry with various applications on both new-build and heritage projects. These applications include as-built

documentation, renovation design, Heritage Building Information Modeling (HBIM), quality assurance (QA) and quality control (QC), progress reporting, planning, damage assessment, and marketing, etc. In this lecture, students will learn the concept of reality capture, its applications in the AEC industry and a variety of technological tools, such as LiDAR scanners, 3D cameras, drones and construction robot. They will also explore case studies of implementation of reality capture technology on construction projects and heritage sites.

Biography

Professor Liu is the Bob Aderholdt Endowed Associate Professor of the McWhorter School of Building Science at Auburn University, Auburn, Alabama, USA. Liu's teaching and research areas focus on construction InfoTech. Liu has extensive experience of LiDAR scanning, scan-data processing and extrapolations, photogrammetry, Heritage BIM, and UAS. He has had numerous publications on HBIM, BIM, LiDAR and also led multiple digital documentation and preservation projects funded by the US government agencies.

2022 Virtual Summer School on Resilient Cities

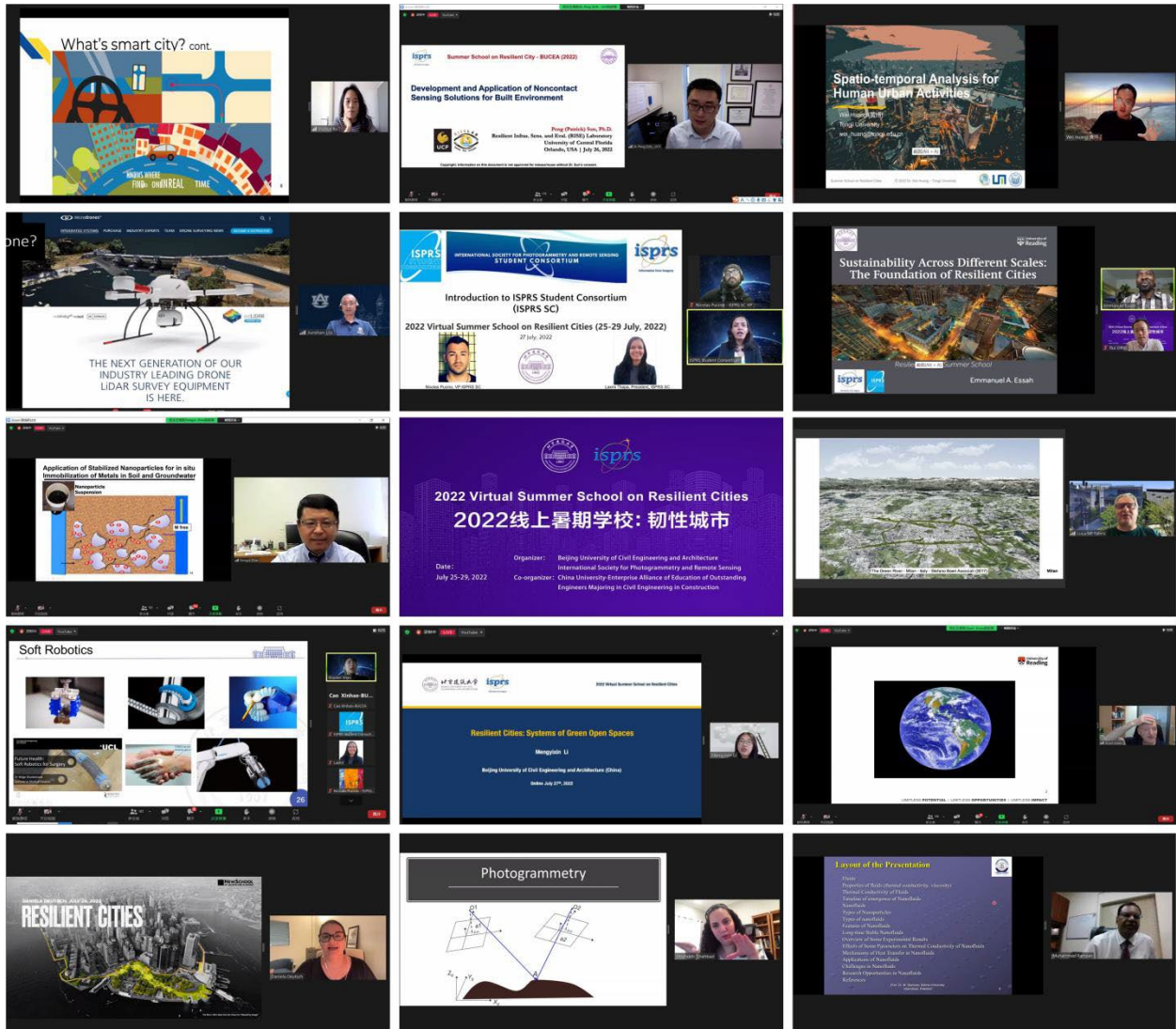
isprs
International Society for Photogrammetry and Remote Sensing

Auburn University

建筑环境和遗产BIM的实景捕获
Reality Capture for Built
Environment and Heritage BIM

Dr. Junshan Liu
奥本大学副教授，美国
Associate Professor, Auburn University, USA

7.28 20:00
北京时间



Summary

This summer school program has offered 14 high-level lectures on academic hotspots related to "Resilient Cities" and topics of interest to students. The students responded strongly and gained a lot. They sent emails to express their gratitude to the organizers and teachers, and hoped to have the opportunity to continue to participate next year. The number of participating countries and universities has reached a record high, demonstrating the growing international influence of the Summer International School.

