

Call for Participation:

2022 Belt and Road International Student Competition on Digital Architectural Design

With the aim to promote the academic and cultural exchanges among university students from various countries, and to cultivate the scientific and technological innovation spirits and practical abilities of university students, the 2022 Belt and Road International Student Competition on Digital Architectural Design is expected to be launched.

The details are notified as follows:

I. Background

Two thousand years ago, in the vast desert, merchants from various countries led their camel caravans proceeding along the long Silk Road with tinkles of the camel bells incessantly lingering on, which facilitated the communication between China and the West. Nowadays, a modern railway transport network has been built on the ancient Silk Road where the speeding trains have become a new bond among countries along the route, accelerating the economic cooperation and cultural exchanges of all these countries. Despite the severe COVID-19 pandemic, the concept of a community with a shared future for mankind that advocates mutual help has been conveyed to the whole world, injecting new vitality to the ancient Silk Road.

Add: No.1 Zhanlanguan Road, Xicheng District, Beijing, P.R.China 100044





Camel bells once lingered in the air, and merchant vessels used to come in a steady stream. Covering traffic hubs of the cities, the winding railway lines play a critical role in promoting the social and economic development of countries along the Belt and Road, for the network accelerates the flow of supplies and passengers. At present, the ongoing trend of digitalization highlights that it is important and pressing to develop, update, and operate digitalized and informatized railways and relevant facilities. In this context, the Belt and Road Architectural University International Consortium (BRAUIC) proposes to organize the 2022 Belt and Road International Student Competition on Digital Architectural Design themed on "Railway: A New Bond Along the Silk Road" with a view to cultivate all college students' digitalization-based thinking that explores how to preserve the historical features of railways and cities, improve overall quality, and achieve sustainable development along the Silk Road. Urban renewal, architectural heritage protection, environmental monitoring, and other topics related to the railways are included in the Competition. Centering around these topics, participants will use computer-assisted technology, virtual reality, digital twins, geographic information system, remote sensing technology, and other new technologies to finish architectural design, structural design, and scene modelling and visualization. During the Competition, students' comprehensive ability to solve problems will be improved. Their innovation capability will be demonstrated and quality in all aspects will be enhanced. Furthermore, this competition can play an active part in promoting the in-depth communication, cooperation, and sharing of BRAUIC members in the fields of

Add: No.1 Zhanlanguan Road, Xicheng District, Beijing, P.R.China 100044



education, science, and culture.

II. Organizational structure

Initiated by:

• Belt and Road Architectural University International Consortium (BRAUIC)

Organized and hosted by:

• Beijing University of Civil Engineering and Architecture (BUCEA)

Co-organized by:

• Beijing International Peace Culture Foundation

Supported by:

- United Nations Educational, Scientific and Cultural Organization (UNESCO)
- G-global International Secretariat
- International Society for Photogrammetry and Remote Sensing (ISPRS)
- Beijing Peace Garden Museum
- China Enterprise Culture Improvement Association
- Belt and Road Logistics Branch of China Communications and Transportation Association
- China Silk Road Group Limited
- Glodon Company Limited
- China Railway Design Corporation
- Beijing Jianda Assets Management Co., Ltd.

Add: No.1 Zhanlanguan Road, Xicheng District, Beijing, P.R.China 100044





- China International GeoInformation Corporation Limited
- Daspatial Technology Co., Ltd.

Featured Support by:

- China Architecture Design Group Land-based Rationalism D. R. C
- Beijing Advanced Innovation Center for Future Urban Design

Add: No.1 Zhanlanguan Road, Xicheng District, Beijing, P.R.China 100044



Belt and Road Architectural University International Consortium

III. Scientific Committee

Categories	Scientific Committee	Members	
4	Honorary Member	• Cui Kai, Academician of Chinese Academy of Engineering and National Master of Engineering Survey and Design	
	Executive	• Zhang Jie, Tsinghua University & Beijing University of	
	Member	Civil Engineering and Architecture, China	
Architectural Design	Members (In alphabetical order)	 Armen Shatvoryan, National University of Architecture and Construction of Armenia Dong Lili, Chongqing Jiaotong University, China Jin Qiuye, Beijing University of Civil Engineering and Architecture, China Luca Maria Francesco Fabris, Politecnico di Milano, Italy Marchwinski Janusz, University of Ecology and Management in Warsaw, Poland Valerija Kopilas, University of Mostar, Bosnia and Herzegovina 	

Add: No.1 Zhanlanguan Road, Xicheng District, Beijing, P.R.China 100044



Belt and Road Architectural University International Consortium

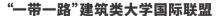
MONINERS			
	Honorary Member	• JIA Junbo, Elected Member of Norwegian Academy of Technological Sciences, and Engineering Expert at Aker Solutions, Norway	
	Executive Member	David Tann, University of East London, the UK	
		Guo Tong, Southeast University, China	
Ctrus atraval Degian		• Liu Zhongxian, Tianjin Chengjian University, China	
Structural Design		Qi Jilin, Beijing University of Civil Engineering and	
	Members	Architecture, China	
	(In alphabetical	Shi Qingxuan, Xi'an University of Architecture and	
	order)	Technology, China	
		Vladimir Filatov, Moscow State University of Civil	
		Engineering, Russia	
		WANG Bo, Jilin Jianzhu University, China	
		• Sisi Zlatanova, SHARP (Strategic Hires and Retention	
		Pathways) Professor at the University of New South Wales,	
Scene Modelling and	Honorary	Head of the Geospatial Research, Innovation and	
Visualization	Member	Development lab, and President of Technical Commission	
		IV 'Spatial Information Science' of the International Society	
		for Photogrammetry and Remote Sensing (ISPRS)	

Add: No.1 Zhanlanguan Road, Xicheng District, Beijing, P.R.China 100044



Belt and Road Architectural University International Consortium

-aavinit.	Executive Member	•Wu Huayi, Wuhan University, China
		Huang Guanwen, Chang' an University, China
		• Hu Han, Southwest Jiaotong University, China
		• Julien CHAMOIN, Junia Graduate School of Engineering,
	Members	France
	(In alphabetical	• Kang Zhizhong, China University of Geosciences, Beijing,
	order)	China
		• Liu Xianglei, Beijing University of Civil Engineering and
		Architecture, China
		Miro Govedarica, University of Novi Sad, Serbia





IV. Eligibility

Open to both graduate and undergraduate students enrolled in engineering

programs.

V. Categories and guidelines

Under the theme of Railway: A New Bond Along the Silk Road, centering around

construction and management of railways and facilities, urban renewal, architectural

heritage protection, environmental monitoring, and other topics, participants will use

computer-assisted technology, virtual reality, digital twins, geographic information

system, remote sensing technology, and other new technologies to finish architectural

design, structural design, and scene modelling and visualization.

The 3 categories of the competition are:

• Category A: Architectural Design;

• Category B: Structural Design;

• Category C: Scene Modelling and Visualization.

See the Annex 1: Competition Guidelines for the specific requirements.

VI. Entry requirements

(1) Each participating university recommends no more than 6 teams with no

more than 2 teams under each category.

(2) A participating team contains no more than 5 members and no more than 2

supervisors. The supervisors shall be university teachers.



(3) The submissions shall not contain any words or patterns indicating the names

of the participants or the university. Those who do not meet the requirements will be

disqualified.

(4) The participants have the copyright of the entries, while the organizers have

the right to exercise other copyright except the authorship of the entries, including the

right to use the entries (without additional payment), and retain the right of

post-processing of the entries, such as publishing books, photo albums, videos, model

exhibitions, and technology promotion, etc.

(5) It is strictly prohibited to copy the existing design works. The participants

shall be responsible for the similarity, plagiarism, and intellectual property disputes

of the technical solutions.

(6) Submitted entries will not be returned.

(7) All submitted materials shall be in English.

VII. Registration

(I) Sign-up

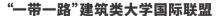
1. Deadline: May 20, 2022

2. Please send the Work Recommendation Form (See Annex 2-1) to

brauic@163.com with the email title of "university name + 2022 BRAUIC

Competition Sign-up".

(II) Work submission





1. Deadline: July 29, 2022

2. Submission:

Please send the *Entry Information Form* (Annex 2-2) and work materials to brauic@163.com with the email title of "university name + 2022 BRAUIC Competition Work Submission". For each recommended work, you shall include drawings and relevant documents with the file title of "university name + work name + first author's name".

Considering the difficulties in sending large files via email, you're suggested to share the work documents through WeTransfer, and fill the WeTransfer Link in the *Entry Information Form*.

VIII. Schedule

S. N.	Time	Arrangement
1	March- April, 2022	Call for participation
2	April-May, 2022	Competition Sign-up
3	June-July, 2022	Work Submission
4	August-September, 2022	Jury selection
	0.4.12022	Award ceremony & work exhibition
5	October 2022	(5th Anniversary Celebration of BRAUIC)

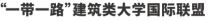


Belt and Road Architectural University International Consortium

IX. Awards

S.N.	Category	Awards	No. of Winners	Prizes	Remarks
		The First Prize	1	15000 yuan, Trophy & Certificate	
1	Architectural	The Second Prize	2	10000 yuan, Trophy & Certificate	There are other
1	Design	The Third Prize	7	5000 yuan, Trophy & Certificate	awards such as Organizational
		Honorable Mentions	10	Certificate	Achievement Award
	2 Structural Design	The First Prize	1	15000 yuan, Trophy & Certificate	and Outstanding Supervisor Awards. Excellent works will be selected for the exhibition. The Jury Committee
		The Second Prize	2	10000 yuan, Trophy & Certificate	
2		The Third Prize	7	5000 yuan, Trophy & Certificate	
2		Honorable Mentions	10	Certificate	
		The Second Prize	2	10000 yuan, Trophy & Certificate	may add or omit any prizes
	1/	The Third Prize	7	5000 yuan, Trophy & Certificate	according to the quality of the
	Scene	V/01		15000 yuan, GET3D	submissions.
3	Modelling	The First Prize	7 /1	Cluster V5.0 (Software	
	and Visualization			Value: 198000 yuan), Trophy & Certificate	

Add: No.1 Zhanlanguan Road, Xicheng District, Beijing, P.R.China 100044





S.N.	Category	Awards	No. of Winners	Prizes	Remarks				
				10000 yuan,					
				ModelPainter 4.0					
		The Second Prize	2	(Software Value: 98000					
		211	JM .	yuan), Trophy &					
		ORIN		Certificate					
		The Third Prize		5000 yuan, ModelFun					
			The Third Dries	The Third Drigo	The Third Drive	The Third Drive	7	V2.1 (Software Value:	
	,O`			59800 yuan), Trophy &					
				Certificate					
		Honorable	10	Cartificate	0				
	T A	Mentions		Certificate					

X. Welfare opportunities

- 1. Media coverage of the stories of university students from various countries participating at the Competition.
- 2. For international students who are not Chinese citizens and have won the First Prize, Beijing University of Civil Engineering and Architecture will award him/her International Students Freshman Scholarship for English-taught Master's Programs.
- 3. For universities winning the Organizational Achievement Award, Beijing University of Civil Engineering and Architecture will offer BUCEA International Summer School Scholarship (tuition-free) to one student from each winning university to participate the 2022 BUCEA International Summer School.
 - 4. Other opportunities provided by member universities.

Add: No.1 Zhanlanguan Road, Xicheng District, Beijing, P.R.China 100044





XI. Contact information

The Secretariat of the organizing committee is set at the Beijing University of Civil Engineering and Architecture.

Contact Information: Ms. LIU Lu, Ms. LI Yang

Tel: 0086-10-68324024, 0086-10-68327443

E-mail: brauic@163.com

Address: No.1 Zhanlanguan Road, Xicheng District, Beijing, P.R.China

100044

The Secretariat of the BRAUIC

April 20, 2022

Add: No.1 Zhanlanguan Road, Xicheng District, Beijing, P.R.China 100044



Annex 1: Competition Guidelines

Category A: Architectural Design

I. Design requirements

1. You shall choose a town or village near a railway, and design a railway station

building.

2. Your design shall be based on a real-life site and its current conditions.

3. The design shall include the following spaces to fulfill the respective

functions: passenger service, tickets counter, waiting area, entrance and exit and

supporting services (station affairs offices, bathrooms, etc.). The combination or

integration mode of the functional spaces is at your discretion, but make sure it

complies with the logic and rules of railway station operation.

4. Besides the passenger transportation function, you shall also fully consider the

local social, economic, and cultural needs. You shall propose strategies to improve

the passenger station building and its surrounding city, town or village, and make a

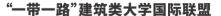
corresponding design.

5. The railway station building shall be designed as Class-4 (see *China Railway*

Station Classification Method in the notes below). The area of the building shall be in

the range of 3,000 to 4,000 m², which can be properly adjusted to meet your needs

and shall be explained accordingly.





6. You will only need to consider the station building's location in relation to the

railway, adjacent or passing through. Factors related to the traffic plan and railway

running shall not to be evaluated in the competition.

II. Entry requirements

1. Submit the following drawings: a floor plan, elevations, plans & sections,

perspectives drawn to scale, and additional drawings that you find necessary to

demonstrate the design philosophy and strategy; a 200-word project concept

description in Chinese or English.

2. The above drawings and design instructions shall be presented in 2 drawings

with A1 size (841mm x 594mm) and in vertical composition. There is no limit to the

representation method of the drawings.

*Notes: As China Railway Station Classification Method states, comprehensive railway stations that involve passenger transport, goods transport or goods train break-up and formation operations and meet at

least two of the following three requirements are perceived as Class-3 station:

- Daily passengers who board, get off the trains and transfer at the station being 2000 or above, and

luggage and packages that are delivered or transferred being 100 pieces or above;

- Daily loading and unloading 50 trains or above;

- Daily engaged in shunting operation for 500 trains or above.

Category B: Structural Design

I. Design Requirements

1. General requirements: This is an open-ended design exercise to encourage





well considered, innovative and creative solutions. Firstly, please describe the

reasons for selecting the geographic location and the actual construction site of the

railway bridge, and its role in the local political, economic and cultural landscape.

Briefly describe the design philosophy or principles applied to this bridge. Up to 500

words for this section please. All design parameters including load and site conditions

are to be determined by the participants. These should include the bridge's design

capacity, topography of the site, its groundwater, geological, geotechnical conditions

as well as any potential long-term impact that the local climate change or earthquake

history would have on the bridge's structural performance. The technical design

standards to be used, the design load and all other relevant site conditions, are to be

specified by the participants and should be clearly presented in the design scheme

with narratives. Please use tabular form or sketches to illustrate where necessary.

Participants are encouraged to propose novel and reasonable bridge structure types.

2. Bridge type: Railway bridge. According to the demands of the countries or

districts where the participants are located, the design work can be carried out on a

single bridge or bridge group in the selected railway line. According to the specific

conditions of the selected railway line, there is no limit to the type of the bridge

crossing barriers, including rivers, roads, and valleys, etc.

3. Scale of the Bridge: the bridge length and span combination shall be

determined by the designers to ensure it is fit for purpose and meets the design





requirements for the selected railway line. The bridge width shall be designed

according to the standard of double track railway.

4. Requirements for bridge types and design contents are as follows:

(1) Bridge types: Suspension, Cable-stayed, Arch bridge, Beam bridge, Truss

bridge or combined, mixed, new conceptual, futuristic designs etc.;

(2) Structural design: When the bridge type is decided, participants shall design

the primary load-bearing components and major ancillary facilities. Additionally, the

strength, stiffness and stability of the bridge structures shall be ensured through

reasonable load combination and internal force calculations;

(3) Materials: steel, concrete, combination and mixed, FRP composites; new

materials, etc.;

(4) Construction schemes: advanced, innovative and applicable construction

schemes:

(5) Design concepts: safety, applicability, durability, innovation, atheistic

features, environmental sustainability, low carbon consideration, energy conservation,

economy, constructability, easy maintenance, etc. Each work shall follow at least

three of the above design concepts.

II. Entry requirements

1. It is recommended that the participants prepare a design appraisal with

(preferably hand) sketches in preparation for the selection of the type of bridge. The





carrying out the final design.

Belt and Road Architectural University International Consortium

appraisal should include two distinct and viable options for the proposed bridge structure, and how loading transfers from the main functioning frame to the substructure. Due consideration should be given to the bridge's serviceability and stability aspects. Review and critically appraise the two schemes (such as sustainability, functionality, buildability, carbon reduction and whole life costing) and identify the final chosen solution. Please specify the reasons for the choice before

- 2. The electronic version of the work description shall be submitted in Word format. If it's in Chinese, use Song font with 4-size characters, 28-point line spacing, no more than 20 pages and 15,000 words; For English submissions, use Times New Roman font with size 11, single line spacing, no more than 35 pages and 10,000 words;
- 3. The number of design drawings (design schemes, main structural drawings, construction schemes, etc.) shall not be more than 10 pages of A3;
- 4. Renderings: color images with no more than 5 pages of A3. The electronic version should be submitted in JPG format.

Category C: Scene Modelling and Visualization

I. Modelling and Visualization Requirements

1. You shall choose a landscape based on the history, culture, customs, and





geography of your chosen region. The landscape shall be typical of railways and

stations along the Belt and Road, and reflect the characteristics and economic and

cultural development of your chosen region.

2. You shall choose your data source, modelling tools, and visualization

platforms according to the features of your chosen landscape and the application

scenarios of the 3D model. We encourage participants to set their creativity and

innovation capacity free and complete the modelling and visualization with your

self-developed plug-ins. One principle is to be followed during the process of data

collection, 3D modelling, and visualization: You shall pay attention to the unity

between fidelity and artistry, and between the model's functionality and application

scenarios.

3. Coverage and accuracy of the model: The parameters vary according to each

participant's application scenarios. However, the following requirements must be met:

The coverage area should be no less than 100m², with the length of one side no less

than 5m. There should be no obvious omissions in the main artificial surface features

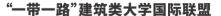
of the model. The geometric accuracy should be no less than 5cm. The texture of the

model should be able to represent the real-world landscape without obvious

omissions.

4. Requirements for the submitted landscape models of railway stations are as

follows:





(1) Landscape features: mainly cultural landscapes such as railway stations,

platforms, and typical scenarios characterized by railway features along the Belt and

Road, supported by natural landscapes such as vegetation and waters;

(2) Modelling data: including but not limited to point cloud and image data

collected by drones and ground platforms;

(3) Model formats: osgb, obj, ifc, dae, dxf, kml, 3ds, etc.;

(4) Implementation plan: It should be scientific, innovative and applicable;

(5) Modelling concepts: The 3D modelling, display, and visualization should

embody design concepts such as creativity, artistry, practicability, science, etc.

II. Entry Requirements

1. Your submission shall include a modelling and visualization proposal, a 3D

model, and renderings.

2. Your modelling and visualization proposal shall be illustrated by text and

graphics, and submitted in .docx format. If it's in Chinese, use Song font with

14-point characters and 28-point line spacing, no more than 20 pages and 15,000

words; For English submissions, use 14-point Times New Roman font with 28-point

line spacing, no more than 35 pages and 10,000 words.

3. Your 3D model shall be submitted in the electronic format, where you shall

also attach a version to be visualized on given platforms, and indicate the theme of

the digital town landscape you have constructed. If you have developed your own





visualization platform, a configuration file should also be submitted.

4. Your renderings should be color images with no more than 5 pages of A3. Electronic versions should be submitted in common formats such as jpg, png, and pdf.

*Notes: The software used in the entries is not limited. The Organizing Committee recommends software of Daspatial Technology Co., Ltd., including DasEarth (https://earth.daspatial.com/), GET3D Cluster, ModelFun, ModelPainter, DasViewer, etc. Download link: https://www.daspatial.com/cn/download. For limited-time free use and training, please contact LIU Lei (Cell: 0086-17692202215). Daspatial Technology Co., Ltd. reserves all rights for final interpretation.

Add: No.1 Zhanlanguan Road, Xicheng District, Beijing, P.R.China 100044



Belt and Road Architectural University International Consortium

Annex 2-1:

Work Recommendation Form:

2022 Belt and Road International Student Competition on Digital Architectural Design

University/ College Name		Contact Person	
E-mail		Tel.	
Work Recommend than 2 teams under	lation Information (Each each category.)	participating university	recommends no more
Category	Work Name	Supervisor(s)	Participant(s)
Architectural			ARC
Structural			
Scene Modelling and Visualization			
,	VERSIA	INULA	

Add: No.1 Zhanlanguan Road, Xicheng District, Beijing, P.R.China 100044



Belt and Road Architectural University International Consortium

Annex 2-2:

Entry Information Form:

2022 Belt and Road International Student Competition on Digital Architectural Design

University/College Name	e:
Participant information	(A participating team contains no more than 5 members)
1	
Full name	School/Department
Gender	Major/Research Field
Passport No	Undergraduate/Postgraduate
Tel.	E-mail
2	
Full name	School/Department
Gender	Major/Research Field
Passport No	Undergraduate/Postgraduate
Tel.	E-mail
3	
Full name	School/Department
Gender	Major/Research Field
Passport No	Undergraduate/Postgraduate
Tel.	E-mail
4	
Full name	School/Department
Gender	Major/Research Field
Passport No	Undergraduate/Postgraduate
Tel.	E-mail
5	
Full name	School/Department
Gender	Major/Research Field
Passport No	Undergraduate/Postgraduate
Tel.	E-mail
Supervisor information	(A participating team contains no more than 2 supervisors)

Add: No.1 Zhanlanguan Road, Xicheng District, Beijing, P.R.China 100044



Belt and Road Architectural University International Consortium

1			
Full name Position			
Title	E-mail		
2			
Full name	Position		
Title	E-mail		
Entry information	MD		
Title of entry	(name of entry + abbreviation of university		
	+ participant name)		
Category	☐ Architectural Design		
(Please tick $\sqrt{\text{in }\Box}$)	☐ Structural Design		
	☐ Scene Modelling and Visualization		
Submission date			
WeTransfer Link			
Design Description (Within 200 word	ds)		
WOLL WOLL	A A A		

Notes:

- 1. Fill in the form separately for each work.
- 2. If the work is awarded, the names of participants and supervisors on the trophies and certificates will be listed in the above-filled order.
- 3. In addition to this form, the submitted works shall be submitted with electronic design contributions. See *Call for Participation* for specific requirements. The electronic contribution file name of the submitted work must be filled in according to the format requirements (example format in brackets) in the entry information form.
- 4. Please send the electronic design contributions by WeTransfer and fill in the WeTransfer link. See *Submission Guidelines* for the details. Please send this form to brauic@163.com.

Add: No.1 Zhanlanguan Road, Xicheng District, Beijing, P.R.China 100044