

Arup Research Competition 2024 Information Pack

1. About the competition

Our built environment is facing unparalleled challenges including climate threats, energy transitions, resource management, technological integration, and ageing infrastructure. Yet, these challenges also present immense opportunities.

Arup, a global multidisciplinary engineering consultancy, is committed to reimagining and reshaping the built environment. Through research and innovation, we create better solutions for our clients and the wider community. A key component of this is nurturing young talent to foster technical excellence and creative problem-solving.

We are excited to launch the Arup Research Competition 2024, inviting research postgraduates from universities and research institutes in Hong Kong, Macau, and Mainland China to propose research projects that will help develop resilient infrastructure, communities and cities. Join us to shape a resilient future!

1.1 Theme

Resilience: Alleviating climate emergencies in cities

Climate change poses a serious threat to our communities. As our cities and infrastructure confront extreme weather challenges, it is more important than ever to develop novel pathways and solutions to reduce emissions and decarbonise the built environment at scale.

This includes designing resilient infrastructure, implementing green technologies, and engaging stakeholders to understand their needs and potential solutions.

Under the auspices of ‘Arup Research Competition 2024’, we are inviting entries for research that will help mitigate the impacts of climate change through innovative thinking and proactive solutions.

1.2 Potential topics to consider:

- Learning from extreme environments to design future-ready and adaptable infrastructure.
- Coping measures for urban heat and heat island effect.
- Creating next-generation solutions for climate risks such as urban surface water flooding.
- Minimising the impact of conflicts and humanitarian crises on sustainable development.
- Learning from catastrophic or low probability/high consequence events.
- Leveraging technology to improve resilience and adaptive capacity to address the climate crisis.
- Futureproofing future supply chains and mitigating materials demand risk.

- Creating design intervention, engineering solutions, and next-generation materials that will improve urban resilience.

1.3 Competition details

1.3.1 Target audience

This competition is open to research postgraduates (MPhil, PhD, or equivalent). Participants can enter in teams of 1 – 3 persons. Each participant can join a maximum of 3 teams. Each participant should only be the team representative for 1 team.

1.3.2 Commencement and briefing

The research competition officially commences on 2 September. There will be online briefings on 19 and 20 September, 12.30pm HKT. They will be conducted in English and Chinese (Putonghua) respectively. Interested participants should sign up at <https://forms.microsoft.com/e/CHZLGsx4T8>

1.3.3 Endorsement

Each entry should be endorsed by the student’s supervisor, who must be a teaching or research staff member at the associated university. However, supervisors may not be listed as part of the competition teams or as co-authors.

1.3.4 Language

Submissions can be in Chinese or English. Presentations can be made in either language, with a preference for English due to the international composition of Arup staff and judges participating in the Finals.

1.3.5 Originality

Participating teams must submit original work that has not been previously accepted or published, either partially or wholly.

1.3.6 Competition format

There will be 3 rounds of judging.

- 1st round: Participants submit a max 500-word abstract in a maximum of 3 A4 pages, including all figures, tables, appendices, etc.
- 2nd round: Teams with shortlisted abstracts will be invited to submit their full research essay of 4,000 - 5,000 words, with no limit on the number of figures, tables, and appendices, etc.
- 3rd round / Finals: Teams with outstanding essays will be invited to present their research in-person (for Hong Kong teams) or online (for Macau and Mainland teams).

1.3.7 Timeline

The competition will run from September 2024 to January 2025.

Competition commencement	2 September 2024
Online briefing (English)	19 September 2024
Online briefing (Chinese)	20 September 2024
Abstract submission deadline	16 October 2024
Announcement of 1 st round results	End-October 2024
Full research essay submission	End-November 2024
Announcement of 2 nd round results	End-December 2024
Finals	Mid-January 2025

1.3.8 Prizes

All shortlisted teams who are invited to submit their essay will receive a certificate of commendation and souvenir. There are 4 prize awards for top entries at the Finals:

- First prize: Certificate + HKD 10,000 or equivalent + Technical Exchange with Arup subject experts
- Second prize: Certificate + HKD 8,000 or equivalent
- 2 x Third prizes: Certificate + HKD 6,000 or equivalent

The prize money for top winning entries will be given in the form of a prepaid credit card issued by either Mastercard or UnionPay. Winning teams have a choice of receiving the card stored in either Hong Kong Dollars (HKD) or its equivalent in Renminbi (RMB) at the point of processing.

Participating teams are required to submit documentary proof of identify before the awarding of prizes.

1.3.9 Judges

There are 5 key judges for the competition:

- Dr. Ricky Tsui (Director, Arup University)
- Dr. Goman Ho (Arup Fellow, Structural Engineering)
- Dr. Peng Liu (Arup Fellow, Structural Engineering)
- Dr. Vincent Cheng (Arup Fellow, Sustainability)
- Dr. Bruce Chong (Arup Fellow, Resilience)

They will be supported by a panel of relevant Arup subject matter experts depending on the entries received.

2. Competition format

2.1 Stage 1: Abstract submission

To participate in the Arup Research Competition 2024, teams must comprise current Research Postgraduates (MPhil, PhD, or equivalent) based at universities or research institutes in Hong Kong, Macau, and Mainland China.

Participating teams should submit their abstract in Word or PDF format via email. A committee of experts will review the submissions and select those invited to the next stage.

Accepted abstracts should:

- Be written in either Chinese (simplified or traditional) or English.
- Align with the competition theme ‘Resilience: Alleviating climate emergencies in cities’.
- Cover any subject area in engineering, design, and advisory expertise offered by Arup.

- Describe the research problem and motivation, background and current state of the subject domain, the team's research approach, results, and unique contributions to the subject.
- Keep within 500 words and in 3 pages, including all figures, tables, appendices, etc.
- Include citations (in-text or footnotes). Refer to either APA or MLA styles for English entries and *信息与文献 参考文献著录规则* guidelines for Chinese entries.
- Be produced in either Word or PDF format.
- Seek the endorsement of their research supervisor or the head of department / school.
- Be submitted before 16 October 2024, 5pm HKT

Send the **completed form & abstract in Word (doc) or PDF format to EA.Arup-University@arup.com**

2.2 Stage 2: Full Research Essay submission

If a participating team's abstract is shortlisted, Arup will contact the team representative and invite them to submit a full research essay of 4,000 - 5,000 words. They will also be provided with a Cover Page template and Essay Number.

The review process will be double-blind. The 5 key judges and other subject matter experts at Arup will evaluate the novelty and significance of your research and the quality of arguments, including the reliability of the research methodology and the feasibility of the findings. Judges will select outstanding essays for the next round of the competition.

The full essay should:

- Be written in either Chinese (simplified or traditional) or English.
- Be between 4,000 and 5,000 words. Key figures should be incorporated into the text and the main text should not exceed 15 pages, excluding the bibliography.
- Include citations (in-text or footnotes) and a bibliography at the end. Refer to either APA or MLA styles for English entries and *信息与文献 参考文献著录规则* guidelines for Chinese entries.
- Include additional figures, tables, and charts in an appendix, which is not counted as part of the 15-page limit.
- Omit all participant information to ensure fair judgement. This includes their names, their institution's name and logo, information on study course, and their professor's / head of department's name and title, which must not appear on the cover page or mentioned in any part of the essay.
- Include the Essay Number, the submission date, and the total number of words on the Cover Page of the essay.
- Be produced in either Word (doc) or PDF format.

Send the **completed Cover Page, Full Research Essay and Appendix (if any)** to **EA.Arup-University@arup.com**. For large files, please use a secure file transfer service such as WeTransfer, Google Drive, or Tencent Cloud, etc

Each essay will be evaluated on:

- Excellence and innovation: Research excellence, originality, familiarity with knowledge, quality, and potential unique contributions and insights (25%)
- Real-life applicability: Feasibility for implementation and societal impact, in China's and East Asia's cities and semi-rural communities (25%)
- Research design: Reliability and novelty of research design and methods for data collection and analysis (25%)
- Research quality: Quality of research writing and the significance of contribution to the subject (25%)

2.3 Stage 3: Presentation Finals

Participating teams with outstanding essays will be invited to give a 10-minute presentation of their research before the competition's 5 key judges, namely Dr Ricky Tsui (Director, Arup University), Dr Goman Ho (Arup Fellow, Structural Engineering), Dr Peng Liu (Arup Fellow, Structural Engineering), Dr Vincent Cheng (Arup Fellow, Sustainability), and Dr Bruce Chong (Arup Fellow, Resilience). Each presentation will be followed by a 5-minute question-and-answer session.

Teams are encouraged to present in English to accommodate the international composition of Arup staff and judges participating in the Finals. 4 winners will be chosen and announced at the end of the event.

Each presentation will be evaluated on:

- Knowledge of the research area (40%)
- Contribution of the research to the subject area (40%)
- Quality of presentation (20%)

3. Rules & Conditions

3.1 General Competition Rules and Conditions

1. The rules and conditions of this Competition are as follows:
 - a. Participating teams must be current Research Postgraduates (MPhil, PhD, or equivalent), based in Hong Kong, Macau, and Mainland China universities or research institutes.

- b. The team representative by submitting this entry declares and represents that the substance of his/her submission, to the extent that they are identified as an original piece of work, are work of his/her own, personal, intellectual effort.
 - c. Applicants shall bear full legal and other responsibilities arising from any possible breach of intellectual property rights, including copyright, patents, trade secret and confidential information, and shall indemnify the Organiser against any claims and liabilities arising from any such breach.
 - d. All entries will be subject to the Rules and Conditions including those pertinent to selection that will be imposed by the Panel of Judges as deemed necessary.
2. The Organiser may contact the applicant for clarification or request for additional information.
3. No Prize may be granted if no entry is deemed appropriate.
4. If, after the Prize is bestowed, any fact supplied in the respective application is discovered to be fraudulent or untrue, or the winner is proven to be associated with a fraudulent or dishonourable act, the Organiser reserves the right, after consulting the Panel of Judges, to withdraw the Prize.
5. The Organiser reserves the right to reject or disqualify any entry and to make or withhold any Prize from any entry without any explanation.
6. The decision of the Panel of Judges will be absolutely final on all matters about the process or the definitions, interpretations of the Rules and Conditions, voting or any other related issues and binding on all entrants and no discussion or correspondence relating to any of the judges' decision will be entered into.
7. All entries remain the property of their respective owners. It is the responsibility of the applicant to protect his/her own registrable intellectual property rights. The Organiser will not be liable for the loss of any intellectual property rights by the applicant as the result of the Organiser's disclosure of the applicant's design or work.
8. None of the information, details, documents and materials submitted with or as part of the entry (including all supporting and materials for display or demonstration) will be returned. The Organiser will retain or destroy all such information, details, documents and materials at its sole discretion.
9. The Rules and Conditions are subject to change by the Organiser where necessary. The Organiser reserves the right to amend the rules of the Prize without announcement.
10. The team representatives will be notified by email if their abstracts and essays are shortlisted for the next stage. If the shortlisted team representative does not respond to the notification attempt within one (1) week from the first notification attempt, the participating team is deemed to not want to be nominated as a shortlisted team or does not want to receive a Prize.

3.2 Publicity

11. By accepting a Prize, you agree that Organiser and its affiliates may use your name and likeness for advertising and promotional purposes without additional compensation, unless prohibited by law. The winners may be requested to participate in various publicity events, for example interviews, winners' sharings, etc. and shall participate in the aforesaid events as requested by the Organiser.

3.3 Privacy

12. You acknowledge and agree that Organiser may collect, store, share and otherwise use personally identifiable information provided by you during the Competition process, including but not limited to, name, mailing address, phone number, and email address (“Personal Information”).

3.4 Warranty, Indemnity and Release

13. You warrant that your Submission is your own original work and, as such, you are the sole and exclusive owner and rights holder of the Submission, and you have the right to make the Submission and grant all required licenses. You agree not to make any Submission that: (i) infringes any third party proprietary rights, intellectual property rights, industrial property rights, personal or moral rights or any other rights, including without limitation, copyright, trademark, patent, trade secret, privacy, publicity or confidentiality obligations, or defames any person; or (ii) otherwise violates any applicable Hong Kong SAR law.
14. To the maximum extent permitted by law, you indemnify and agree to keep indemnified the Organiser at all times from and against any liability, claims, demands, losses, damages, costs and expenses resulting from any of your acts, defaults or omissions and/or a breach of any warranty set forth herein. To the maximum extent permitted by law, you agree to defend, indemnify and hold harmless the Organiser from and against any and all claims, actions, suits or proceedings, as well as any and all losses, liabilities, damages, costs and expenses (including reasonable attorneys fees) arising out of or accruing from: (a) your Submission or other material uploaded or otherwise provided by you that infringes any third party proprietary rights, intellectual property rights, industrial property rights, personal or moral rights or any other rights, including without limitation, copyright, trademark, patent, trade secret, privacy, publicity or confidentiality obligations, or defames any person; (b) any misrepresentation made by you in connection with the Competition; (c) any non-compliance by you with these Rules or any applicable Hong Kong SAR law; (d) claims brought by persons or entities other than the parties to these Rules arising from or related to your involvement with the Competition; and (e) your acceptance, possession, misuse or use of any Prize, or your participation in the Competition and any Competition-related activity.
15. You hereby release the Organiser from any liability associated with: (a) any malfunction or other problem with the Competition Website; (b) any error in the collection, processing, or retention of any Submission; or (c) any typographical or other error in the printing, offering or announcement of any Prize or winners.

3.5 Not an Offer or Contract of Employment

16. Under no circumstances will the entry of a Submission, the awarding of a Prize, or anything in these Rules be construed as an offer or contract of employment with the Organiser. You acknowledge that you have submitted your Submission voluntarily and not in confidence or in trust. You acknowledge that no confidential, fiduciary, agency, employment or other similar relationship is created between you and the Competition Organiser by your acceptance of these Rules or your entry of your Submission.

4. General FAQs

1. *Can I participate in more than one participating team?*

Yes, you may join up to 3 participating teams. However, you should be the representative for 1 team only.

2. *Can I participate in this competition if I am not enrolled in a postgraduate research programme?*

No, the competition is open only to research postgraduates (MPhil, PhD, or equivalent). It is not open to undergraduates, postdoctoral researchers, or postgraduate students studying in taught programmes at the point of submitting the abstract entry.

3. *Can I submit my abstract in English?*

Yes, participating teams can choose to submit their abstract and full essay in either English or Chinese (simplified or traditional). However, participating teams invited to the Finals are encouraged to present their research in English to accommodate the international composition of Arup staff and judges participating in the Finals.

4. *Is there a registration fee to participate?*

There is no registration fee to participate. However, each entry must be endorsed by the participating team's research supervisor or the head of department / school.

5. *How will the prize money be given?*

The prize money for top winning entries will be given in the form of a prepaid credit card issued by either Mastercard or UnionPay. Winning teams have a choice of receiving the card stored in either Hong Kong Dollars (HKD) or its equivalent in Renminbi (RMB) at the point of processing.

6. *What are the grounds for disqualification?*

A participating team's entry will be disqualified if it is found to be:

- Engaging in research misconduct such as falsification and/or fabrication of data and results, and plagiarism such as copying without attribution.
- Contain significant content overlap between two or more competition entries. Participating teams with doubts about such an issue should check with their supervisors to ensure the content is different enough to avoid being flagged.
- Conducting unethical research involving people, animals, the misuse of personal and sensitive data, etc.
- Making unfounded and/or incendiary claims relating to race, religion, gender, and vulnerable groups, etc.
- Abstract entries that do not adhere to the competition theme and submission guidelines will be desk-rejected without review.

For enquiries, please send to EA.Arup-University@arup.com