

AR-401(y)

Studio MA1 (Huang)

Huang Jeffrey

Cursus	Sem.	Type
Architecture	MA1, MA3	Obl.
Mob. AR	H	Obl.

Language of teaching	English
Credits	13
Withdrawal Session	Unauthorized Winter
Semester	Fall
Exam	During the semester
Workload	390h
Weeks	14
Hours	6 weekly
Lecture	2 weekly
Project	4 weekly
Number of positions	35

Remark

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Summary

This studio explores meaningful form generating processes by the use of parametric tools and introduces the notion of the digital vernacular in architectural and urban design thinking. Our studio site will be Xixinan, our programme the rural return of the urban elite to the countryside.

Content

The advent of new digital technologies has had a twofold impact on architectural thinking and urban design, transforming, on one hand, the processes for form generation and design production through algorithmic and parametric technologies, and, on the other hand, enabling an escape from the static fate of the built environment by facilitating dynamic interaction between inhabitants and their surrounding. Our interest in the orientation "Form + Type" is to explore meaningful form generating processes by the use of algorithmic and parametric tools and introduce the notion of digital vernacular in architectural and urban design thinking. In particular, we examine the potential of responsive morphogenetic design to explore intuitive form finding processes that address bio-climatic and socio-economic challenges.

This studio (the "Xixinan studio") is the second in a planned series of design research projects focused on the theme of data-driven urbanism. While developing a base of digital evidence specific to each site, each studio will explore novel means of deploying this data to support design and generate form.

The intellectual aim of the studio is to question the extent to which the data-scape can artificially generate urban form. Our interest is directed at the decoding and recoding of two distinct domains of knowledge: exteriority which represents a many-layered geographic condition and anteriority which represents the embedded knowledge of local architectural typologies and systems. While the exteriority of geographic data is crucial to our research, we place a primary emphasis on the generative potential of typology- what we have called "growth typologies". Decoding anterior form and then recoding and deploying it across new territories allows us to challenge the role of architecture in urban developments of increased scale and complexity.

Keywords

Parametric Vernacular - Data-driven Design - Computational Urbanism - Morphogenesis - Artificial Design - Rapid Urbanization - Singapore -Equatorial Urbanism.

Learning Prerequisites

Important concepts to start the course

(1) Parametric Methods: In alignment with the goals of the "Form + Type" orientation, this studio will explore meaningful form generating processes by the use of algorithmic and parametric tools and introduce the notion of growth typologies in architectural and urban design thinking.

(2) Digital Generative Design Tools: We assert that it is precisely the new wave of digital tools (scripting, parametric modeling, and associative geometry) that enable the type of approach which is forwarded by the studio's agenda. The ability to organize and leverage information permits the architect to approach projects of new scales and complexity. The logical management of variation allows the architect to avoid repetitive solutions and to maintain an equally high level of conceptual rigor across the entire project, to engage with that complexity rather than reducing it. An additional aspect is the ability to quickly and accurately produce quantitative information during the design process which can be used to strengthen the argument or inform the decision-making process.

Learning Outcomes

By the end of the course, the student must be able to:

- Interpret the site-specific parameters and other issues of relevance to the project using drawings and diagrams.
- Critique a specific project brief and a specific context and respond with a meaningful data-driven design concept.
- Translate a data-driven design concept into meaningful architectural and/or urban propositions at appropriate scales and levels of granularity.
- Produce coherent architectural representations and models at sufficient levels of detail.
- Formulate the morphogenetic narrative and create convincing arguments for the design propositions.
- Develop convincing final diagrams, drawings, renderings, simulations, physical and digital models.

Transversal skills

- Collect data.
- Design and present a poster.
- Make an oral presentation.

Teaching methods

- The studio is project based, and will use design research methods and design studio pedagogy, ordinarily consisting of desk critiques, pin-up reviews, intermediate and final reviews.
- The studio is committed to the transformative power and relevance of architectural form to the life of the city. That being the case, we are not enforcing a formal agenda; rather, our desire is to empower architects in their form-finding capability.
- Digital tool is not an end of itself but a means for exploring alternative and novel, yet sensible and meaningful architectures.

Expected student activities

- Architectural projects will be developed individually (or exceptionally in groups of 2).
- Some group work may occur in the analysis stages.

Assessment methods

- Grading will be based upon the quality of the projects in the research exercises, in the intermediary reviews and in the final review.

- Projects will be reviewed and assessed based on their conceptual strength and innovation, the coherence and resolution of their architectural translation, their representative clarity and expressive power, and the persuasiveness of their communication, both orally, and through the physical and digital artifacts.

Supervision

Assistants Yes

Resources

Bibliography

- Huang, J. (2015), *Growth Typologies, Localities and Defamiliarisation: Experiments with Artificial Urbanism in Sichuan, Guangzhou and Beijing*. *Archit Design*, 85: 70–75. doi: 10.1002/ad.1980.