This year’s studio develops the architectural implications of the Rural Return: a movement combining reverse migration of China’s urbanized villagers back to their ancestral homes and the renewed interest of China’s urban elite in rural history and lifestyle. The studio takes place in Xixinan village, a historic rural village near the Huangshan Mountains in Anhui province.

Filled with centuries-old vernacular architecture and surrounded by a productive agricultural landscape, Xixinan is positioned to be a center for rural and sustainable culture in China. The Rural Return, however, is not a reenactment of a long-gone era of Chinese village life, but a response to an unprecedented thirty years of Chinese development and urbanization. How can we build for new rural future in China?

The Xixinan studio deploys state-of-the-art digital technique for studying the existing village, mapping the challenges it faces accommodating the Rural Return, and generating architectural interventions that permit the flourishing of a new rural culture.
China’s urbanization, which represents more than half its population, has been a long-term priority of its government and has created much of the prosperity the country has experienced in recent decades. The overall trend toward urbanization has been projected to continue till at least 2040, when 70 percent of the population would be urban and China would have 15 mega-cities with populations averaging at 25 million inhabitants.

In spite of this impressive urban migration, urbanization has serious downsides for the population, with rural migrants being deprived by healthcare, social services and education, once they have moved in the city, leading to social inequality.

/ Reverse Migration
In recent years a back-to-the-land movement has emerged in China, focused on bringing urban-dwellers back to rural areas and revitalizing
villages while fostering sustainable lifestyles for their inhabitants. People move back for different reasons which vary from offering a healthier alternative to living in the city (better quality of food, air, water) to returning to roots and taking care of aging parents. Sometimes this takes the form of gentrification, such as the example of the Bishan village (also in Anhui province) which caused housing prices to elevate.

/ Demographics of Xixinan Village
What the official statistics do reveal about the population of Xixinan village is that it is almost entirely employed in agriculture: 89% of the village works in agriculture. The other important take-away from official statistics is the importance of the local architectural heritage: 10 Ming Dynasty buildings and over 100 Qing dynasty buildings are listed among other historical monuments. This heritage anchors a portion of the non-agricultural heritage of the village: one of the priorities of the village plan is to develop a tourism industry around its ancient architectural heritage.
In the revitalization of rural villages, what role does landscape play in shaping the environmental quality of modern rural life? In what ways does the landscape shape the experience and development of a new rural urbanism or conversely how will newcomers transform the landscape as geological agents? What does development yield to landscape versus landscape yielding to development? And how do those complex forces of interaction, pushes and pulls, lead to a new cultural topography?

For Xixinan, the river and canals serve as a catalyst and backbone of village life, both culturally, geometrically, and ecologically. The interaction with the river affects both daily life in activities such as cleaning dishes, laundry, food preparation and longer term seasonal and yearly cycles through rains and flooding. Over time, the summation of these rhythms and cycles centered on water, transform both the built and natural environment. Through the utilization of parametric tools these forces
Field generation by attraction points. Previous studio: Danny Te Kloese and Korab Ramadani.

can be studied to generate predictive trajectories. How can insertions of program and geometries in the landscape catalyze morphological transformations? Transformations of key geographical elements that can be thought of as catalysts for revitalization of the village.
/ Materials
In the province of Anhui, traditional dwellings are made with stone, earth, wood and bricks. Wood is predominantly used for structural frameworks (mugoujia jiegou), which are carrying the entire load while the walls are often open cavity and made by fired bricks. Where the wooden framework follows the line of the wall, vegetative substances such as bamboo, kaoliang or corn stalks may be used to fill the intervals between columns. Earth is used for load-bearing walls. The hangtu method (method of tamping earth into solid walls, known in the west as pise de terre), has been popular especially in times of scarcity.

/ Crafts
Wood joinery has a history of about 7,000 years in China. These elaborate and complex joineries are richly carved. Ventilation ports or perforated windows of carved stone or brick are
also used on exterior walls, which have a variety of shapes and which are patterned to form lattices. Functional carpentry reaches its peak in the lattice patterns of wooden windows and doors. They are used on transitional surfaces leading from the outside to the enclosed space and function as mediators of ventilation, whose geometry, pattern and density regulate the direction, volume, and velocity of airflow.

/ New Techniques

Common materials used in construction are bricks, tiles, as well as concrete for elements such as pre-stressed slabs. The high cost of wood has led to dramatic reductions in its use as structure or decoration. Contemporary projects revisit and reconsider Chinese vernacular by employing new approaches and methods. For example, Archi-Union Architects have utilised traditional reclaimed materials, together with algorithmic design and robotic manufacturing for the development of walls and facades that form intricate patterns and complex forms.
Due to extreme density in China’s major cities, there is a growing tendency to return back to the rural countryside, an aforementioned movement called back-to-the-land.

How can the Rural Return accommodate variable flows of reverse migrants (sometimes many, sometimes few), while avoiding gentrification of the existing ancient city?

The studio’s objective is the proposal of architectural interventions leading to the rehabilitation of the village while preserving its local cultural and natural features. This will be pursued through research, site mapping and design development utilising parametric tools and techniques.

The workshops that will run every week will focus on mapping theory and techniques, experience design, form and geometry, and representation.
/ Semester 1
During the 1st semester students will conduct research and site mapping and they will develop and test their proposed architectural interventions. The different steps pursued will be:

• Research and site mapping/ site database in relation to local typologies, ecology, and demographics/ economy. The deliverables will be diagrams, written description, site maps with overlays and hotspots.

• Mapping out a pattern of existing life in the village following one of the key verbs: Learning, Meeting, Visiting, Caring/ Healing, and Working. A problem statement will be developed to articulate a moment of difficulty, or missed opportunity for the actors involved in the rural return.

• Development of architectural interventions and parametric model. Projects may propose either reusing existing buildings, or new construction, or some combination of the two.

• Simulation and Testing of design interventions in different locations by using parametric models.

• Overall development of the design project through feedback and rationalization.

/Semester 2
The second semester will be initiated by visiting the site. The hypothetical design proposals from the first semester will be tested during the site visit and accordingly adapted during the second semester. The overall goal is to develop in detail a buildable intervention driven by the integration of local and advanced techniques related to materiality, craftsmanship, and construction.
/ Design Research through Digital Means
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 research 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 and top-down solutions and to maintain an equally high level of conceptual rigor across the entire project, while engaging with complexity rather than reducing it.

/ Parametric and Data-driven methods
The studio will explore form generating processes by the use of algorithmic and parametric tools and will introduce the notion of growth typologies in architectural and urban design thinking. Furthermore, we will examine the potential of responsive morphogenetic design to explore intuitive form finding processes that address bio-climatic and socio-economic challenges.
Giving motivation to our morphogenetic research is a variety of data-
driven methods. By iteratively testing against quantitative criteria we challenge our students to think critically about their proposals. Our aim is to expand the scope and methodology of data-driven design, by decoding and recoding two distinct domains of knowledge: exteriority, which represents a 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’.

/ Experience design and experience mapping
Designing for innovation requires that we articulate how space will be experienced, and how it may allow for unexpected, provocative interaction. A central experience concept will allow us to share and articulate ideas about experience of space, and provide the basis for the form of the prototype. Iterative mapping will provide qualitative and quantitative data that will inform design. Maps should be considered as generative diagrams of local activities related to local economy, pedestrian mobility, micro-climate, recreation, natural landscape to mention a few.

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collaboration

Turenscape Academy: The Turenscape Academy whose residential campus is located in Xixinan, will be our main collaborator.

Tom Verebes: the Provost of Turenscape Academy and Director of OCEAN CN, Hong Kong and Turenscape, Beijing. Programme Head of the AA Shanghai Summer School (2007-2017). Former roles include: Associate Dean for T&L (2011-2014), and Associate Professor at HKU (2009-2016); Co-Director of the AA DRL (1996 to 2009); Guest Professor at ABK Stuttgart (2004-2006).

lectures

A series of lectures will take place during the semester, whose subject area will be related to our studio topic: urbanisation and migration, parametric urbanism, craftsmanship and robotic fabrication.
The studio theme will span the entire academic year 2017/18. Accordingly, there will be continuity between the fall and spring semester, but each semester can be followed independently.

2017  
September 11th: Studio Presentation  
September 19th: Course Introduction and Beginning of Workshop  
End October: Midreview  
December 18-22: Final review  

2018  
Early February 2018: Studio trip to Shanghai/Xixinan  
End February 2018: Studio begins  
Early April 2018: Midreview  
End May 2018: Studio Final Review

about MxD

The Media Design Lab is situated at the intersection of the School of Computer and Communications Science, and the School of Architecture, Civil and Environmental Engineering. We draw from a variety of academic fields, including architecture, design, computer science, psychology, physics, anthropology, cognitive science, economics, and material sciences.

Link to previous year's blog: https://morphogenesis16.wordpress.com/