A4701
Innovation, Technology and Architecture: NextGen

Tues. 11:00 am – 1:00pm
Room 408 GSAPP

Instructor: Lise Anne Couture

ABSTRACT

Architecture, perhaps more than ever before, is today benefiting from the convergence of research and development of cutting edge technologies across a wide range of disciplines. From an explicitly design oriented perspective the NextGen seminar is an exploration and research of a varied cross-section of potential drivers of change and innovation with respect to the physical and spatial aspects architecture.

The seminar will involve research and exploration of diverse state of the art technologies such as biodesign, self-assembling structures, sensor technologies, programmable materials, 3D and 4D printing, robotics, and as well as other developments in material sciences and strategies or intelligence transferred from other disciplines such as the automotive and aeronautic. The class is interested in speculating from a design perspective on the aesthetic, cultural, spatial and formal implications that might result from the merging of architecture with these diverse cutting edge Next Gen developments in technology.

At the turn of the century the development of iron and steel frame structures liberated the plan and changed not only how one occupies but how also conceives of space while the development of large scale plate glass transformed not only building enclosure but also our understanding of the relationship between interiority and exteriority and had a profound impact on the our contemporary urban environment. Today the development of sensor technologies and smart materials, advancements in lightweight high performance structures and other technological innovations continue to impact and transform architecture and our envrionment. The NextGen seminar is interested in exploring disruption, paradigm shifts and game changers that have the potential to drive innovation in architecture and design today and in the not so distant future.

Students will research and explore emerging and cutting edge technologies from a broad range of disciplines and areas of research that could have significant material, structural, performative and logistical impact within the discipline of architecture, and that in turn would influence our understanding and experience of form, space and the surrounding environment. Through investigations of selected technologies the class speculate upon architectural and urban applications and their resulting impact.

Projects will involve individual and team research culminating in student presentations. As a final assignment students will “design” a highly speculative conceptual architectural scenario that would incorporate one more of the researched technologies/processes/materials. Our task will be to speculate and to propose “What If”. The generated proposals should be thoughtful and critical yet inventive, the intention of the course is to think out of the box, to push the envelop and to test the limits.

The class format will include student representations, design crits as well as talks or presentations by invited guest followed by an interactive discussion with the students

Past Guests have included:

Paola Antonelli: *Biodesign*
Senior Curator of Architecture and Design, and Director of R&D Museum of Modern Art

Greg Lynn: *Composite materials, Robotic buildings*
Principal Greg Lynne FORM and Professor SupraStudio UCLA

Hod Lipson: *Digital Manufacturing; Artifical Intelligence*
Director, Columbia University Creative Machines Lab

Skylar Tibbetts: *Self-assembling structures, 4D printing and programmable materials*
Professor MIT Department of Architecture, Co-director of SJET Self-assembly Lab

Chuck Hoberman: *Transformable design and processes*
Principal Chuck Hoberman Associates, professor Harvard GSD

Mark Goulthorpe: *Reimagining fabrication and assembly*
Professor MIT Architecture, Co-head of SMarchS Program and Principal of Decoi

Class Requirements: attendance, short presentation of research and preliminary project proposal, final presentation of Speculative Design Scenario.