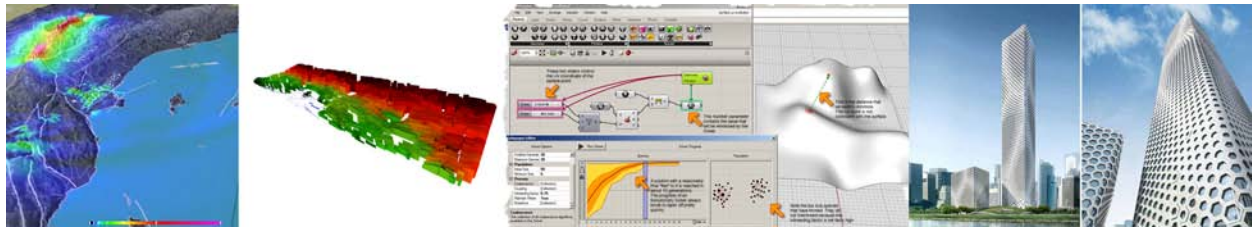


## ARCH 511/611: Vertical Studio

### Reasoning

Instructor: Assistant Professor Janghwan Cheon, AIA LEED AP



### OVERVIEW:

"All models are wrong, but some are useful."

"Correlation is enough!"

-George Box

0.1 Since the advent of 'computation' in architecture, designers have leveraged the power of advanced digital tools for a wide range of purposes. However, many investigations trend towards the search for new and exciting forms or towards BIM (Building Information Modeling), seeking to facilitate design and construction processes. The gap between these two is larger than ever. One can find various installation projects using 'generative computation' in the corner of the museums and a lot of normative government buildings done with BIM technology.

0.2 The new availability of huge amounts of data, along with the statistical tools to crunch these numbers, offers a whole new way of understanding the world. But what are the valuable data for architecture? How do you decide which one has more priority than the others? How can data work for your design process rather than limit? How do you quantify social, cultural and programmatic values? How do you surpass mere data collection and technical optimization?

The principal objective of this studio is to investigate these 2 agendas for a new design spaces. Rather than exploring abstract computational methodology for 'form finding', we incorporate project parameters at an early stage as a generator of concept and explore a wide range of new strategies in the process of design/decision making. The studio will be an intensive environment for research of emergent technologies and the reciprocal relation with the material conditions of construction. Using computation technology (Rhino, Grasshopper, Galapagos (Grasshopper plug-in) and Scripting), this studio will explore how to collect, analyze and translate site information to set up relationships between seemingly unrelated data as an architectural form. These parameters could range from history, culture, views, and solar exposure to financial variables like maximizing profit, square footage, etc. The data will be taken from many sources, including aesthetics and the sociocultural, political and historical dimensions because massive data itself is the new meaning. By doing so, the concept and design are much more related to the existing conditions of the site, the user needs, and architects' intention. As we operate at various scales for each project, each phase provides an opportunity to question and evaluate relationships between urban, cultural, programmatic, and material parameters. The cumulative effects of complexity and multiplicity may themselves result in the production of new qualities.



Through series of iterations, we will optimize those relationships which will be reflected as a built form within architectural discipline('The optimization of multiple performative criteria rarely results in a single ideal design outcome and usually requires either the weighting-compromise-or elimination of some factors.'). After that, we will test this outcome with digital simulation software (Ecotect, Structure) and physical model (rapid prototyping), which will allow seamless connection between initial research and final architectural form. Over the course of the semester, we will create architecture through experiments rather than aiming fixed goal. We will understand the implications of the massive expansion of parameters and move on from a performative analytical model to a more comprehensive conceptualisation of information modeling that opens up creative options leading to new qualities and relationships, not just streamlining a process.

The architect's role will be re-conceptualised from 'the Master' to that of multidisciplinary strategist. You are still ultimately responsible for design intent and needs to be able to look at the big picture to decide which factors to choose, to give limits to the parameters, assign a weight to each factor and determine the order and method of the information modeling process. In this case, the parametric digital tool becomes a means for exploring design ideas through the implementation of precise project parameters. It is different from pure generative approach in that it choreographs pragmatic building information as a way of actively engaging architectural problems. It differs from a practical approach in that 'computation' serves as an unveiling and a rediscovery process rather than problem solving toward the built environment.

**PHASE:**

PHASE\_I: Parametric Typology Exercise [3 Weeks]

PHASE\_II: Reasoning+Testing [7 Weeks]

PHASE\_III: Evaluating and Responding and Development [6 Weeks]