



ASSOCIATION FOR COMPUTER AIDED DESIGN IN ARCHITECTURE

# ACADIA 2010

# **LIFE** in:formation

ON RESPONSIVE INFORMATION AND VARIATIONS IN ARCHITECTURE

## Life in Formation

On Responsive Information and Variations in Architecture

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**Conference Chairs:** Aaron Sprecher, Shai Yeshayahu and Pablo Lorenzo-Eiroa

**Exhibition Chairs:** Chandler Ahrens, Axel Schmitzberger and Michael Su

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**October 21st - October 24th 2010**, The Cooper Union, New York, United States

### General Call

The **ACADIA 2010** conference will focus on the influence of computing and its impact on the changing nature of information in architectural education, research, and practice. With the ever-increasing integration of information technologies in the design laboratory, the discipline of architecture has changed profoundly in recent years. The emerging fields of digital fabrication, performance-based design, generative and evolutionary modeling among others, are now at the core of investigations in a growing community of digital design practitioners, researchers, engineers, and scientists.

**ACADIA 2010** will explore the ways designers, architects, engineers and scientists collect, analyze and assemble information with the objective of generating computational systems that redefine the notions of design performance and optimization, evolutionary and responsive models. These notions are today inherently related to the possibilities and limitations offered by our increasing computational capabilities, and the way information creates continuous and innovative relations between the human, the environment, and the machine.

**ACADIA 2010** aims at producing a provisional map of recent and on-going researches, practices and experiments that question the nature of information and associated technologies, with an emphasis on the way the varying character of information has transformed our perception of design and architecture.

**ACADIA 2010** will gather leading practitioners, theorists, and researchers who will examine the relation that architecture has with technology and information, and how the latter propel today's most innovative design experimentations and research. The conference will be centered on a series of peer-reviewed paper sessions and a ground-breaking exhibition including peer-reviewed projects that will be celebrated for their innovation.

The search for guiding principles that would generate information systems that react to the complexity of our human reality has fueled a fascination for giving life to architectural forms. In the past 50 years, roughly since the advent of information theories and their related technologies, this fascination has produced a wide variety of architectural models that attempted to optimize or augment architecture's perceptual, environmental, and inhabitation performance. From the inception of object-oriented designs to today's morphogenetic desires, computational models have been largely used to express the complexity of our reality and environment. The performance of such models has been generally assessed according to the capability to channel information affluence, influence and confluence, the three conditions associated with quantity, quality and versatility of information assets.

### Information Affluence

The affluence of information in our technologically rich environment has gradually transformed the architectural object from a neutral frame into a complex organism which has the capacity to gather and stream information. This includes the increasing quantity of information that is embedded through design intentions and post occupation into the architectural system. Information becomes alive and necessary, as it increasingly encompasses our reality and sustains our being and environment. The faster it flows and the deeper it becomes materially embodied, the better informed we become about design and architecture. Architecture is here perceived in terms of its capability to contain information.

### Information Influence

A growing community of researchers now adopts terms such as “*generative*”, “*adaptive*”, “*responsive*” and “*interactive*” to analyze, assess and envision the potentials offered by information systems for architecture. When architecture becomes responsive it is able to be shaped by rapidly changing information. Its capacity to influence and be influenced by such operations requires it to manage complexity. This provides the possibility for architectural systems to symbiotically relate to their social, cultural, and ecological environments, therefore turning into mutable and adapting constructs.

### Information Confluence

Computational engines increasingly vary and mutate under the confluence of multiple domains of knowledge. This technological confluence has triggered the emergence of new domains of expertise, such as computational biology, environmental engineering and biomimetics, which are today accountable for the nature and existence of sophisticated architectural systems of information. Inherently trans-disciplinary and inspired by computational tools, these newly formed fields of knowledge have generated new modes of design thinking that share a similar objective, namely, the increase in capacity to integrate a wide variety of knowledge within a singular model. This condition has now provided a limitless platform for the emergence of design possibilities that combine organic and inorganic matters, analog and digital signs of information, static and dynamic systems. While standing at the confluence of multiple domains of knowledge, computational architecture depends now on the nature of information technologies and the increasing possibilities to merge multiple types of information and disciplinary expertise.

Looking at design and research in terms of their capability to foster information affluences, influences and confluences reveal that today’s digital designs are foremost responsive. They are evolving and mutating according to the information processing, connectivity and media that generate them. **ACADIA 2010** will focus on the nature of information processes, systems and tools that propel today’s most innovative digital design research and experiments. **ACADIA 2010** proposes to observe, analyze and question the conditions associated with these information mechanisms through a series of critical questions: What is the nature of architectural systems and design platforms with regard to the intensification of information assets? How do increasing desires for performance and precision affect digital design thinking? Are there limits to our ability to gather and stream information? What is the relevance of evolutionary models for today’s computational modeling and design environments? How can one assess the evolutionary nature of an architectural system? Why is the computational model inherently unstable? What would a model of transdisciplinary practice driven by technological confluence look like today? How do these forces impact and shape cultural, social political and economic models?

### Call for Paper | Peer-reviewed Paper Sessions

Looking at design activity and research in terms of their capability to stream, screen and embed information, the conference co-chairs seek paper proposals that reveal how today's digital designs are foremost responsive and evolving according to the conditions associated with information processing, connectivity and media. Accepted papers will be included in the peer-reviewed paper sessions and proceedings of the conference. Architects, engineers, media artists, scientists, researchers and graduate/post graduate students in related fields of inquiry are all invited to submit works that explore, but are not limited to, the following topics:

- Interface between analog and digital systems
- Evolutionary systems, adaptations and optimizations
- Geometric and mathematical modeling of complexity
- Open Source platforms and interfaces
- Information and network theories applied to design systems
- Data processing and digital fabrication technologies
- Responsive environments and dynamic feedback
- Behavioral simulation in performance-based modeling
- Approaches to multi-dimensional scales in architecture and the environment
- Parallel processing in network-enabled collaborative research and design
- Representation and visualization of data sets
- Interdisciplinary streaming, screening and re-sampling of information
- Urban computing and locative media

### Evaluation Process

Papers will be evaluated according to the value of their contribution, originality, procedural soundness, and legibility. They should contextualize the work relative to previous efforts; explain the research approach and the significance of the findings. Papers will be reviewed by an international panel of experts in a blind peer-reviewed process and will be chosen according to both merit and fit to the conference theme.

### Submission Guidelines

**Abstract:** Should be maximum 500 words and include a description on the way information is being streamed, processed, analyzed and used in the research. Your abstract may not include any identifying marks or authors name. Use standard letter size or A4 format saved as PDF.

**Full Papers:** Use standard letter size or A4 format saved as PDF. Text should be maximum 2500 words. Images with captions can be included. A flow diagram describing the way information is used and processed in the research is encouraged but not mandatory. If the paper is accepted, the author will be asked to make revisions based on the blind review comments and to reformat according to a more specific set of formatting guidelines for publishing. Your paper and filename may not include any identifying marks or authors name.

### Call for projects | Peer-reviewed Exhibition

Submitted design and research work should address the way information processes, systems and tools are manifested and explored in and with the use of algorithmic, evolutionary and digital material/fabrication processes. Research projects resulting from multidisciplinary collaborations between architects, industrial designers, media artists, game designers, computer scientists and engineers, as well as other disciplines or collaborative projects that affect the built environment, the public domain, and human perception are highly encouraged.

### Evaluation Process

Projects will be evaluated according to the value of the contribution, originality, procedural soundness, and legibility. Projects will be reviewed by an international panel of experts in a blind peer-reviewed process and will be chosen according to both merit and fit to the conference theme.

### Submission Guidelines

Send a slide presentation of maximum 10 slides, 96dpi each, in PDF format. One of ten slides must include a project description of maximum 500 words. Your slide presentation and filename may not include any identifying marks or authors name.

### Deadlines

#### Call for Papers

Abstracts due	April	06, 2010	<i>(optional but encouraged)</i>
Deadline for full papers	May	11, 2010	
Notification of Accepted Papers	June	22, 2010	
Revised Accepted Papers due	July	22, 2010	

#### Call for Projects

Project Proposal	March	10, 2010	<i>(optional but encouraged)</i>
Project Submission	April	14, 2010	
Notification to authors	May	15, 2010	
Position Paper due	June	09, 2010	
Revised position paper / Final exhibit material	July	06, 2010	

## Conference Schedule

### Workshop Sessions: Monday October 18, Tuesday 19 and Wednesday 20

#### DAY 1 THURSDAY OCTOBER 21ST 2010

09:00 am - 11:30 am	Registration Workshop Presentations
11:30 am - 12:00 pm	Opening Notes
12:00 pm - 01:00 pm	Opening Lecture   Antoine Picon
01:00 pm - 03:30 pm	Affluence   Peer-reviewed sessions
03:30 pm - 04:00 pm	Coffee Break
04:00 pm - 05:00 pm	Keynote Lecture   Evan Douglass
05:00 pm - 06:30 pm	Work-in-Progress   Guest Lectures
06:30 pm - 07:00 pm	Break
07:00 pm - 08:00 pm	Roundtable discussion

#### DAY 2 FRIDAY OCTOBER 22ND 2010

09:00 am - 11:30 am	Influence   Peer-reviewed sessions
11:30 am - 12:30 pm	Keynote Lecture   Georges Teyssoit
12:30 pm - 01:30 pm	Lunch
01:30 pm - 03:00 pm	Guest Lectures
03:00 pm - 04:00 pm	Keynote Lecture   Jesse Reiser
04:00 pm - 04:30 pm	Break
04:30 pm - 05:30 pm	Roundtable discussion
05:30 pm - 07:30 pm	ACADIA 2010 Peer-reviewed exhibition
08:30 pm - 11:00 pm	ACADI@NY   NY Critical Practices

#### DAY 3 SATURDAY OCTOBER 23RD 2010

09:00 am - 11:30 am	Confluence   Peer-reviewed session
11:30 am - 12:30 pm	Keynote Lecture   Karl Chu
12:30 pm - 01:30 pm	Lunch
01:30 pm - 03:00 pm	Work-in-Progress   Guest Lectures
03:00 pm - 04:00 pm	Keynote Lecture
04:00 pm - 04:30 pm	Break
04:30 pm - 05:30 pm	Roundtable discussion
05:30 pm - 06:30 pm	<i>Meeting at Pratt Institute</i>
06:30 pm - 07:30 pm	ACADIA 2010 Exhibition Opening
07:30 pm - 09:30 pm	Roundtable discussion

#### DAY 4 SUNDAY OCTOBER 24TH 2010

09:00 am - 10:00 am	Closing remarks   ACADIA President
10:00 am - 11:00 am	Coffee - Brunch
11:00 am - 12:30 pm	Roundtable discussion
12:30 pm - 01:00 pm	Closing remarks   ACADIA 2010 Chairs
01:00 pm - 06:00 pm	Visit of Landmarks in New York

## Location | The Cooper Union, NY

**The Cooper Union** was founded by Peter Cooper, industrialist and philanthropist, in 1859 as one of the nation's most selective institutions of higher education. It provides outstanding academic programs in architecture, art and engineering for a diverse body of students. The Great Hall, where the **ACADIA** main conference will take place, has stood for more than a century as a bastion of free speech and as a witness to the flow of American history and ideas, and most recently the Cooper Union has unveiled a new academic building, an already recognizable landmark in the city, designed by Morphosis Architects.

The school of architecture is known for its international renowned faculty, and some of its facilities that combine interesting conventional and non-conventional manual crafts, techniques and the latest technology. Multiple computer labs provide different perspectives that serve architecture design. There has been an interesting challenge at the **School of Architecture at Cooper Union** concerning the introduction of the digital. **Cooper Union's** recognizable legacy for attentive craft and innovative creative drawing techniques framed by the deep understanding of architecture representation were integrated within the introduction of digital strategies. The analog and the digital are integrated and challenged through multiple media-based interfaces alternating crossings between the hand, the eye, and the mind, by crafting and modeling architectures with tools, machines, and the intermediation of the virtual digital. All of these intermediations help to create unique architectural solutions that engage an intuitive personal creative approach, to the otherwise standardized digital parameterization of information.

Digital technologies and related media accelerate the continuous development of **New York City** as a field of cultural and social events. In celebration of **ACADIA 2010**, the conference program includes a series of exciting satellite venues. A visit to some of the most innovative digitally-conceived buildings recently developed in the city - such as the new addition to the Morgan Library (*Renzo Piano*), the Alice Tully Hall and The Highline Park (*Diller Scofidio+Renfro and Field Operations*); and Bond Street Residential Building (*Herzog and De Meuron*) will represent an opportunity to experience the city. Meetings with leading NY-based architects, engineers and actors in the field of computational research along with the opening of two **ACADIA** exhibitions will provide a platform for social, educational and cultural exchange of ideas among participants.

In addition to the celebration of **ACADIA's** peer-reviewed exhibition at **Cooper Union's Houghton Gallery**, **ACADIA 2010** will celebrate a satellite exhibition on New York-based digital practices that are among the most innovative today. To celebrate the exhilarating culture of New York, the conference will include **ACADI@NY**, an informal gathering of today's emerging architects and designers.

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## Additional Information

For any additional information, please contact the conference chairs at [acadia2010@acadia.org](mailto:acadia2010@acadia.org)