PERFORMALISM: FORM AND PERFORMANCE
IN DIGITAL ARCHITECTURE
27 June – 13 September 2008
Helena Rubinstein Pavilion for Contemporary Art

EXHIBITION
Guest Curators: Yasha Grobman, Eran Neuman
Associate Curator: Ahuva Israel
Design and concept development: Yasha Grobman, Open Source Architecture (Eran Neuman, Aaron Sprecher, Chandler Ahrens)
Design team: Yaron Kanor, Mushit Fidelman, Naomi Simhony
Computer modeling and scripting: Yaron Kanor, Yasha Grobman, Aaron Sprecher, Tal Tamir
Graphic consultation: Studio kaplan/franco
Graphic design: Mushit Fidelman, Naomi Simhony
Content editing of video: Yasha Grobman, Eran Neuman
Video editing: Tomer Dikerman, Nir Lave
Interviewers: Yasha Grobman, Eran Neuman
Content editing of interviews: Eran Neuman
Video photographers of interviews: Vic David (Peter Eisenman, Winka Dubbelladom, Karl Chu, Aaron Sprecher, Jesse Reiser, Hina Jamelie and Ali Rahim, William Mac Donald, Sulan Kolatant), Orly Arava (Greg Lynn), Ayal Goldberg (Preston Scott Cohen), Hervé Lasgouttes (François Roche and Stéphanie Lavaux, Chandler Ahrens), Dieg Kortun (Achim Mempes, Bernhard Frankan)
Video editing of interviews: Omri Ayalon
Translation of interviews: Natanel Elfassy, Oded Haas, Dana Mor, Shira Sprecher
Multimedia systems design and installation: Protech Integration Ltd.
Carpentry: David Cohen Carpentry
Panels printing: Shalemgraph Ltd.
Exhibition installation team: Shaul Goldklang, Avital Gourary, Roy Gordon, Latzi Grobman, Oded Haas, Dikla Hamo, Tzvi Harel, Devis Iosifzon, Paul Kalnitz, Yaron Kanor, Ofer Korin, Yitzhak Laiwand, Edna Langenthal, Tamir Lavi, Maya Levy, Osnat Linder-Assouline, Neritja Ravid, Slavik Rotenberg, Anna Shitman, Sarit Waingarten, Yaad Wochinsky, Nimrod Ziv

CATALOGUE
Editors: Yasha Grobman, Eran Neuman
Design and production: Studio kaplan/franco
Gila Kaplan, Kefi Franco, Nirit Binyamin
Hebrew text editing of the essays: Esther Dotan
Daphna Levy
Hebrew translation of the project captions and descriptions: Ruth Palmon, Avigail Ferdman; editing: Rotem Kielev
English translation and editing: Naomi Arnsberg, Margery Morgan
(p. 154-155)
(English translation and editing: Richard Flantz
(pp. 7, 13-17, 29-33)
Typing: Mirella Solomon
Printing: A.R. Printing Ltd.

WEBSITE OF THE EXHIBITION
Planning and production: Guy Austern, Uri Elhav, Mushit Fidelman, Itzik Gold, Daphna Naparstak
www.performalism.com

THANKS:

The exhibition and the catalogue courtesy of

AZRIELI GROUP
and with the assistance of an anonymous donation

Tel Aviv Museum of Art, cat. 8/2008

The interview with Frank Gehry, screened at the exhibition, is an excerpt taken from videos produced by the Danish Architecture Center, Copenhagen, for the exhibition Digital Project — Frank Gehry's Vision, a collaboration between Frank Gehry, Gehry Technologies, Curator Kirsten Kiser and DAC [Danish Architecture Center, financed by Realia].

The interview with Lord Norman Foster, The Making of Architecture (2001), screened at the exhibition, was conducted by Dayan Sudjic, in collaboration with Bentley.

The Franken Architekten Homecouture model shipping was sponsored by Evonik Röhm GmbH transport.

Yasha Grobman, Eran Neuman
## Contents

### Foreword
Mordechai Omer 07

###表演主义：一建筑表演的宣言
Eran Neuman, Yasha Grobman 08

### The Various Dimensions of the Concept of "Performance"
Yasha Grobman 13

### Architecture as Performative Art
Antoine Picon 18

### Performing the Contemporary, Or: Towards an Even Newer Architecture
Sylvia Lavin 23

### The Collapsing of Technological Performance and the Subject’s Performance
Eran Neuman 29

### Reflections on the Generation of the Exhibition Design
1. Forms of Prediction / Aaron Sprecher 34
2. aGENTS / Yasha Grobman 35

### Contemporary Architecture Practice
GLForm 42
ARCHITECTONICS 50
EISENMAN ARCHITECTS 58
OPEN SOURCE ARCHITECTURE 66
FRANKEN ARCHITEKTE 74
R & Sie(n) 82
OCEAN 90
GEHRY PARTNERS, LLP / GEHRY TECHNOLOGIES 98
METAY (KARL CHU) 106
KOL/MAC LLC 114
RUR 120
FOSTER + PARTNERS 128
PRESTON SCOTT COHEN 136

### Project Credits 154
On 24 January 2008, the world financial market woke up with a hangover. News rapidly spread that a French trader, Jérôme Kerviel, had operated fraudulent transactions during the past year leading his financial institution to a historical loss of 71 billion dollars. In the following hours, from Paris to New York, Tokyo, Shanghai and London, worldwide trading markets recorded hysterical movements as if their nervous systems got affected by an uncontrollable virus.

Often portrayed as an echo of human multilayered activities, financial markets act within highly meshed networks that are responsive to a wide range of parameters such as production rates, human conflicts and levels of available natural resources. While these parameters are predictable, the French trader Kerviel had in fact revealed a symptomatic notion inherent to systemic organization: the likelihood for a parasitic\(^1\) event to disturb the fragile equilibrium that may occur in a regulated system.

The notion of parasitic system has received many definitions in architecture during the past decennia. From Andrew Benjamin’s “architectural parasitism\(^2\)” to Paul Virilio’s “accidentology,” architects and theorists have developed a perception of the architectural system as an ensemble of recognizable agents that sometimes induce the emergence of unpredictable events.

Today, the fascination for such architectural systems is essentially triggered by the possibility of modeling the dynamics of our reality using fast-computing processes. It is here suggested that such an interest is intimately linked with a model of reality as an ensemble of nonlinear events that are perceived as predictable of unprecedented scale phenomena.

Climatic mutations, deregulated urban sprawls and even terrorist activities represent as many phenomena that form, or should we say in-form, nonlinear architectural systems. Here, the notion of nonlinearity refers to the idea that the architectural form is now replaced by a formation composed of entities. Each of these entities continuously collects, treats and resamples information that is subsequently communicated to the overall system. Similarly to a cellular automaton or a beehive, this bottom-up organization is by definition nonlinear because it induces the possibility for various agents to act and influence their environment simultaneously. The nonlinear model therefore reflects a degree of performance that is a function of agents connecting, reacting to and transforming the patterns created and identified specific key frames in the process where the multiple delocalized agents that are designed to operate on the organism.

Extracted from the theoretical discourse on the interrelation between systems, computer agents and designer, the exhibition’s design method and process of creation reflects a critical attempt to redefine these relations from a performative point of view.

The method used for the exhibition design employed computer-controlled intelligent agents. The agents simulated movements throughout the gallery spaces and were exploited as the source of information for an evolutionary form generation process. This process determined the formal expression of the exhibition’s overall layout and the particular location of the various exhibits.

During the simulation runs the location of the agents was continuously traced and connected to a spatial tessellation algorithm that dynamically formed phenotypical patterns in the gallery space. Thus, in every moment of the agents’ movement in the exhibition space a different pattern was generated. A set of visual fitness criteria controlled by the designer examined the density of the patterns created and identified specific key frames in the process where the generated pattern cells, their dimensions and distribution had a potential to be used as a form for an architectural project’s display.

As an evolutionary process, it relied on an initial genotypic description of a set of parameters that defined each agent’s movement in space and the interaction rules with other agents and objects. The data from the movement was thus used to generate the phenotypic expression of the initial set of parameters as a dynamic pattern.

Tracing movements as the basis for a form generation method had already a wide range of influential forces across the system.

Considering system as formation, the perception of reality in terms of agent-based organizations has tremendous implications in architecture. Most importantly, it considers the architectural formation as a responsive organism that transforms according to the activities of a multitude of decentralized and intricate agents. Curiously rhizomatic as well as hierarchical,\(^3\) this model implies a mode of organization that relies on a finite set of operations that are distributed across a myriad of self-generating nodes. The architectural organism is here no longer conceived out of a predefined set of decisions but instead emanates from the multiple delocalized agents that are designed to operate on the organism.

[1] Its executive chairman Daniel Bouton describes the technique used by Kerviel as a “mutating virus" in which hundreds of thousands of trades were hidden behind offsetting faked hedge trades, in "French police probe rogue trader Kerviel," Reuters, National Post (26 January 2008).
[4] See Manuel de Landa, Meshworks, Hierarchies and Interfaces, online at http://www.t0.or.at/delanda/meshwork.htm
been used by such architects as Asymptote (Broadcast Architecture) and Greg Lynn (Port Authority Bridge competition). The difference between these two precedents rests in the source of information that was used to generate the movement. In the case of Asymptote, the human movement was traced directly, while in Lynn's case the movement was traced from balls controlled by a negotiation of external forces. The current exhibition’s design sought to advance this idea, replacing the inert balls with intelligent computer agents.

The first scenario of the agents’ coded genotypes regarded the agents as the exhibits. In this scenario, the agents were free to wander in the exhibition space, influenced by attraction and repulsion forces that were designated to contextual points of interest/objects such as video projections and screens that were positioned according to technical constraints. The agents’ movement was driven by a constant negotiation between the forces of the external, contextual points and the internal, genotypic coded set of forces, which defined the basic movement parameters and the way agents react to each other.

Since a pattern that was generated by a singular key frame represents a local position of agents, it was decided to use in the generation process a compilation of several key frames which represent the agents’ positions (regarded in this context as phenotypes) in a sequence of frames within the simulation run. Thus, the generated pattern represents the entire movement rather than a singular moment in time. The patterns most fitted in the population of the generated solutions in terms of cell density and dimensions were chosen as a basis for additional fine tuning runs. These simulation/generation runs were performed until the distribution and dimensions of all the cells in the patterns were satisfactory.

The strategy for determining the elevation of the generated cells derived from the nature of the exhibits presented in each cell. A set of sequential cell heights was defined in a way that an exhibit that needs to be examined from a closer distance, i.e., architectural details or small images, would be positioned closer to the viewer than large images that can be viewed from a greater distance.

The second scenario that was examined saw the agents as the exhibition’s future visitors. In this scenario, the agents were released to wander in the exhibition space according to a different set of genotypic parameters that defined their movement in terms of the mutual influence and the interrelations with the forces that were designated to the other objects in the exhibition space. The idea behind this modus operandi stemmed from an assumption that visitors’ movement could be simulated and controlled to optimize their exposure to the exhibits. Reductive by nature, the possibility of parameterizing the future visitor’s movement as part of the exhibition’s design was also found to be self-reflective since it suggested using visitors to define the position of exhibits according to a future simulated visitor’s movement.

The combination of forces negotiation with visual pattern examination by the designer that was employed for the exhibition design combined ideas based on conventional agent-based design approaches, in which there is no centralized system control structure (see aforementioned precedents and those described by Hong et al 2002, Y. Kalay 2004), with traditional design approaches that emphasize the centrality of the designer.

Derived from the logic of agent-based design, the exhibition design suggests a parametric performative approach to the generation of an initial exhibition plan. As a counter-reaction to the often inert position of the designer in this type of design processes, the suggested approach combines the possibility of the designer’s intervention in the generation process with the advantage of unpredictable forms generated by agent information inputs. The used approach also suggests a method to simultaneously combine various formal information inputs from different points in time into a single animated, dynamic form. The multifaceted reflection of the idea of performance in architectural design which is an important part of the exhibition’s concept is therefore manifested also in the way its display was generated.

Aaron Sprecher is a cofounder of and partner in Open Source Architecture and Assistant Professor in the School of Architecture at McGill University, Montreal. He is a recipient of numerous awards, including Fellow of Syracuse University’s Center of Excellence.


Exhibition Layout

lower level / תוכנית הקומה התחתונה

Exhibition gallery, perspectival view of the gallery space /

Exhibition gallery, perspectival view of the gallery space /

ground level / תוכנית קומת הקרקע

computer modeling and rendering, pp. 38-39: Yaron Kanor

Exhibition gallery, perspectival view of the gallery space /

Exhibition gallery, perspectival view of the gallery space /