AIM Module #I - ARCH P-7123
2023-2024

Analysis, Systems & Composition

Denis Derycke (Teacher/Coordinator)
Michel Lefèvre (Teacher)
Julien Rippinger (Invited lecturer)
Uri Wegman (Invited lecturer)

L’anglais est la langue d’enseignement principale.

Discussions en anglais avec les non-francophones et discussions en français possible avec les francophones.

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La plupart des références et les conférences seront en anglais, de même que les jurys intermédiaires et le jury final.

-

Travail en binôme.

AlICe

Laboratoire d'informatique pour l'image et la conception en architecture

Analysis, Systems & Composition

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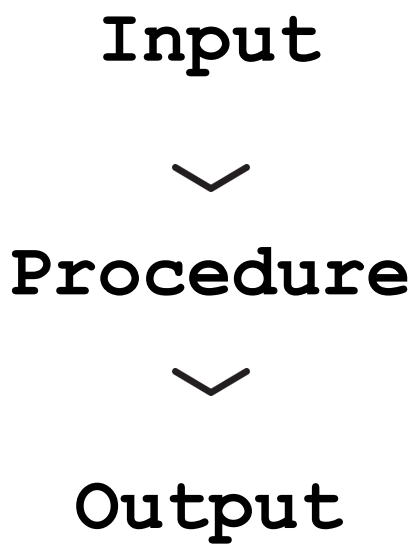
Graphic Algorithm & Projection shifts

Graphic Algorithm

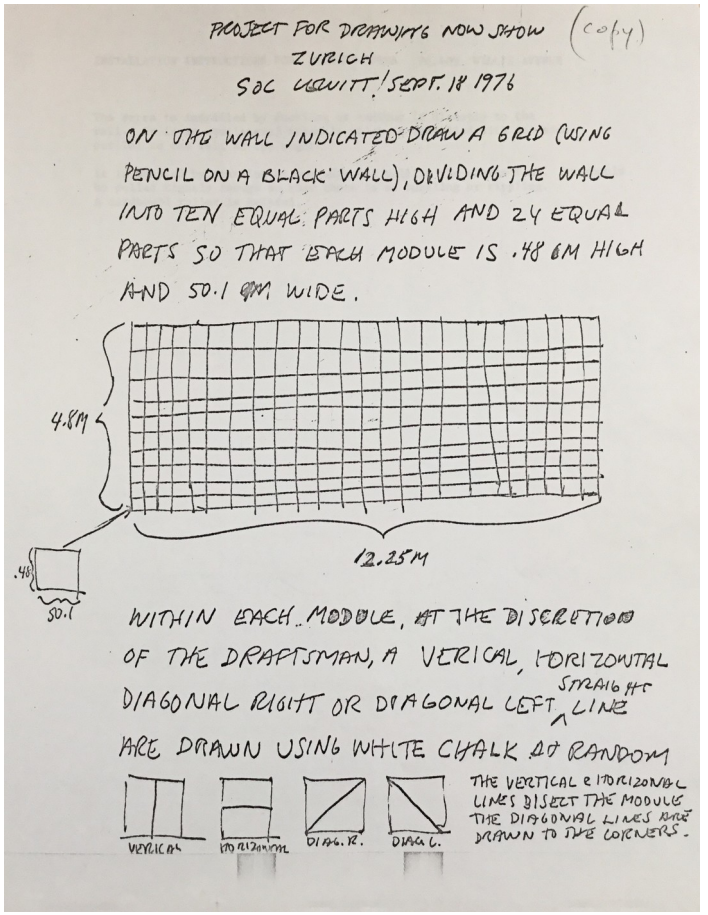
Algorithm: a set of instruction that accomplishes a specific task.



Algorithm designed art:

Sol Lewitt – Wall Drawings

Sol Lewitt, Wall Drawing 769



(The instructions are not corresponding to the drawing)

Algorithm designed literature:
OuLiPo = OUvroir de **LI**ttérature **PO**tentielle

François Le Lionnais, Georges Perec, Raymond Queneau,...

Algorithm designed music:

Terry Riley (1935) : In C (1966)

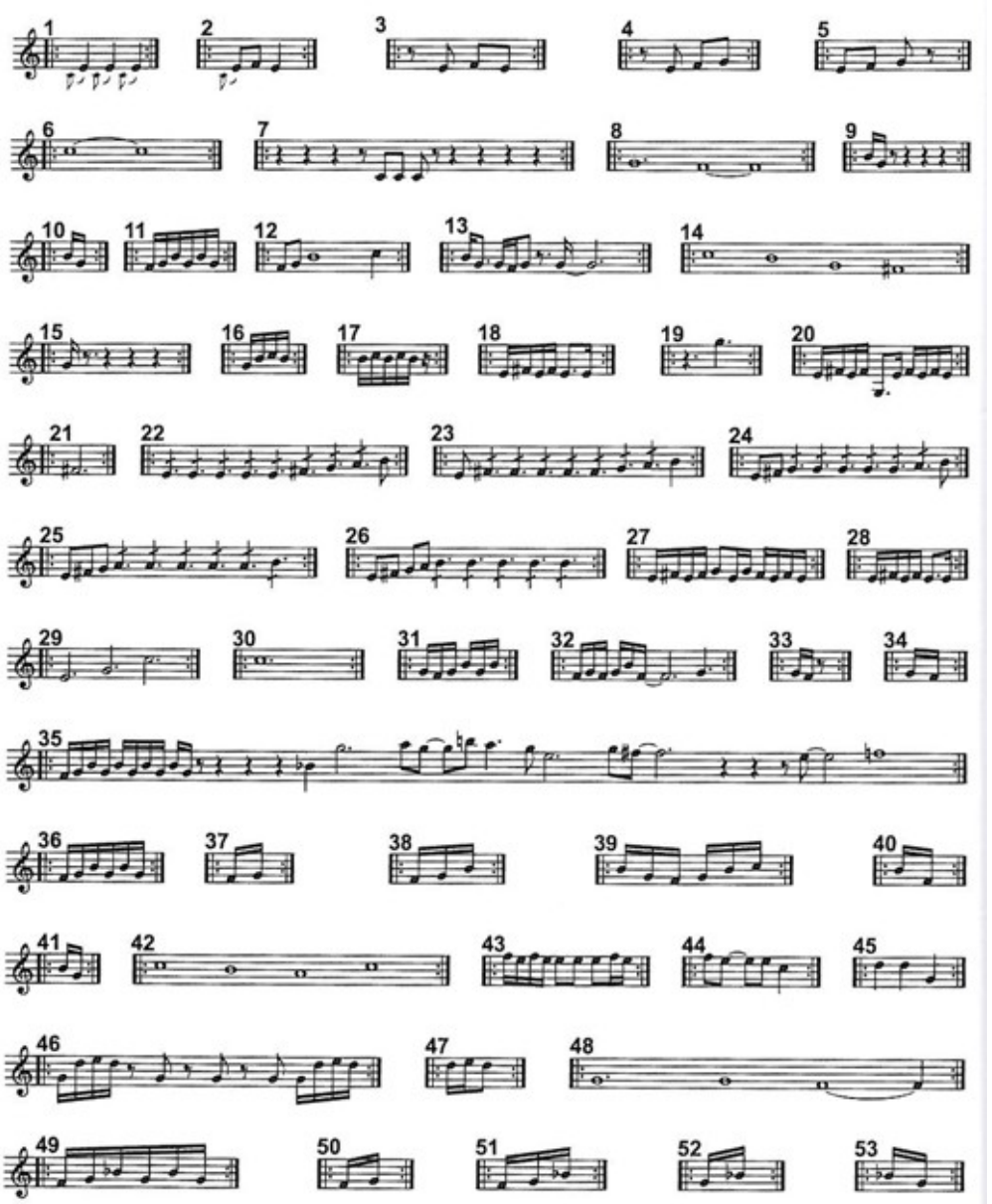
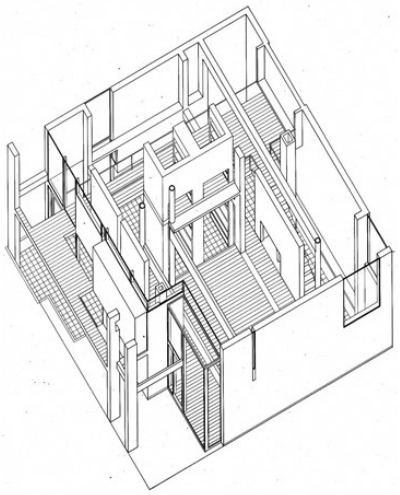


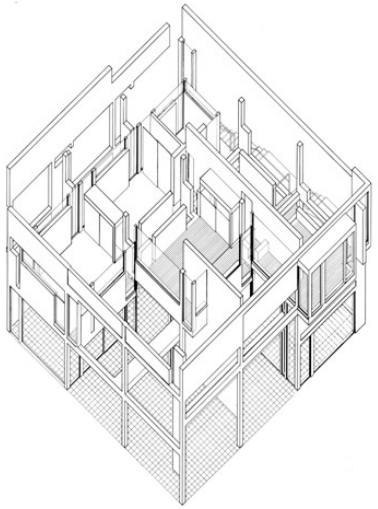
Figure 1.1. Score of *In C* (copyright Terry Riley, 1964).

Algorithm designed architecture:

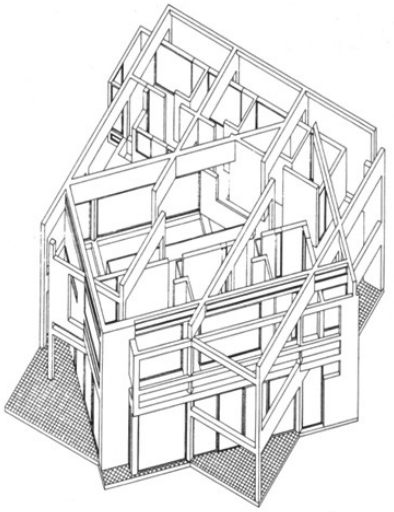
Peter Eisenman's Houses of Cards (1967-1976)



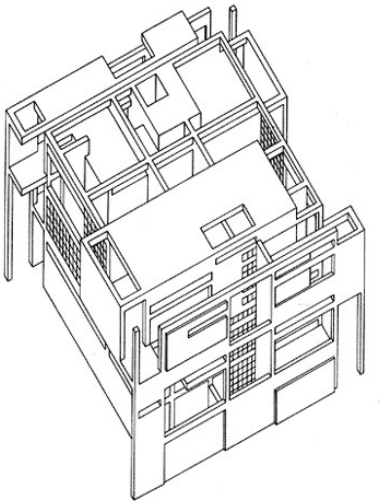
House I - 1967



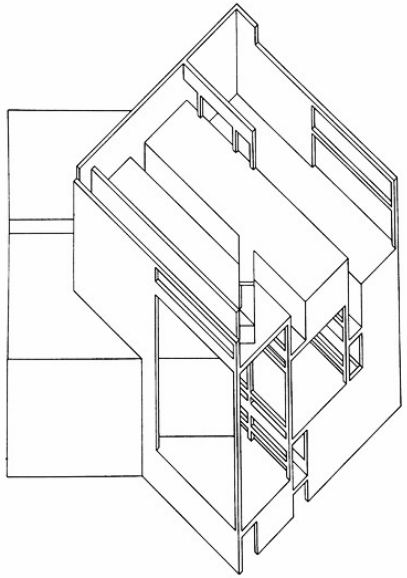
House II - 1970



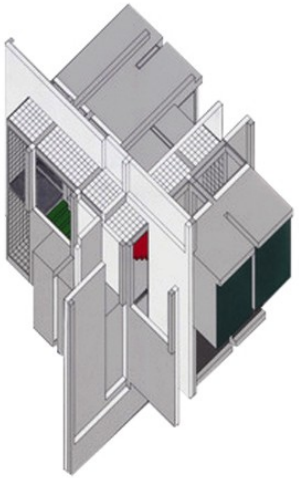
House III - 1971



House IV - 1971



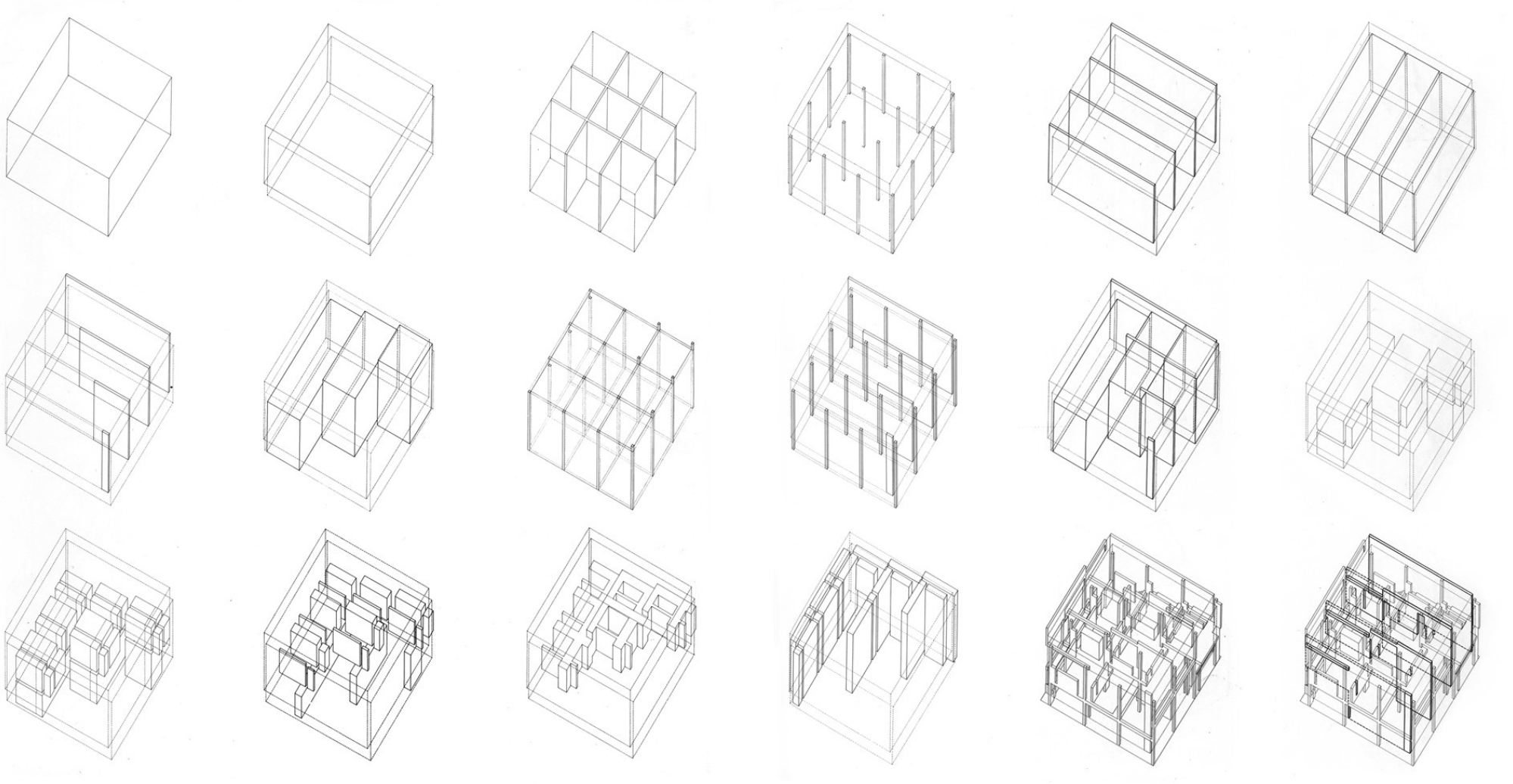
House V - 1972



House VI - 1976

Algorithm designed architecture:

Peter Eisenman's Houses II (1970)



House II - 18 diagrams, Peter Eisenman, 1972.

From
an object oriented design
to
a process oriented design

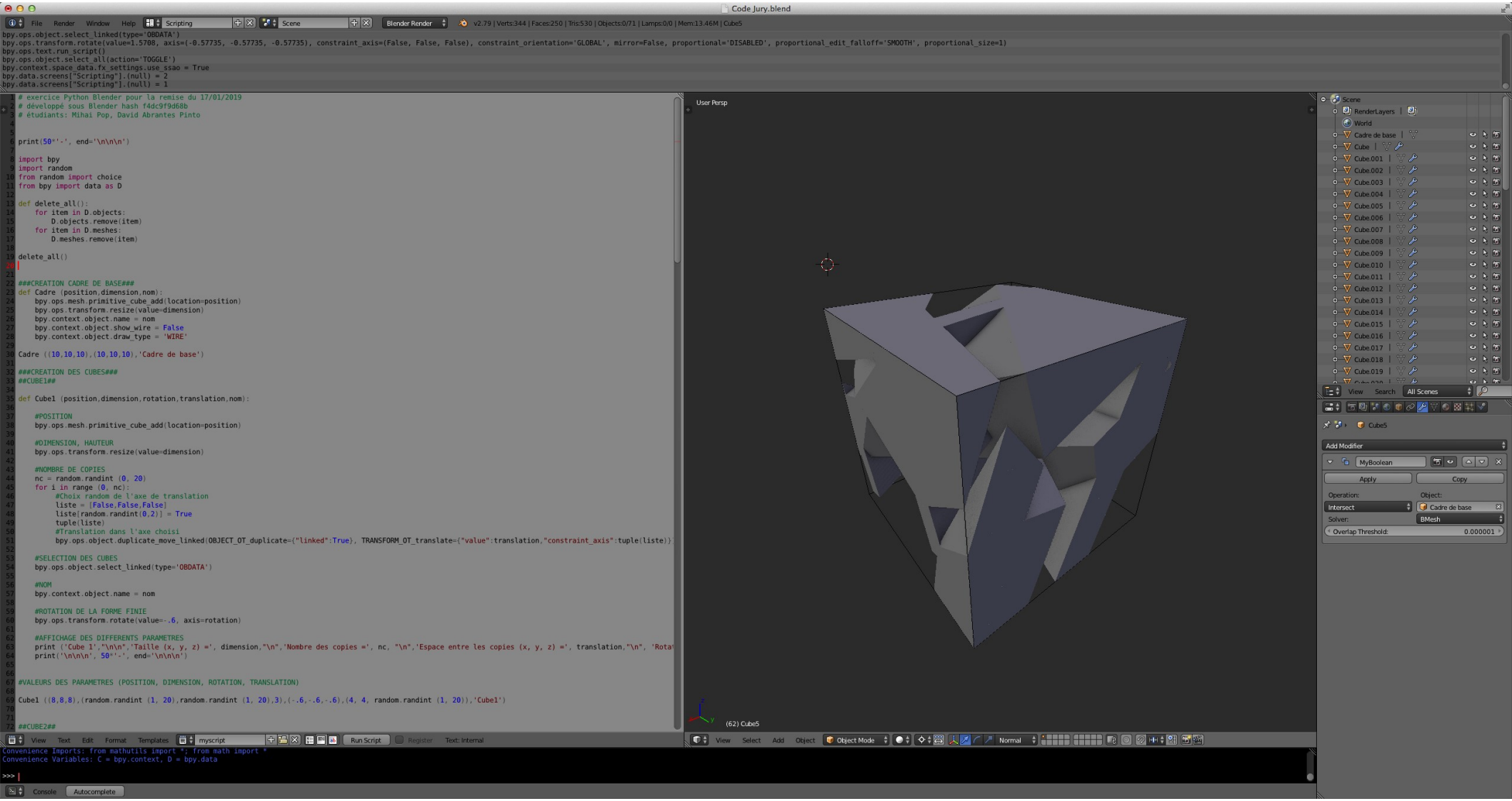
- to challenge the notion of “Parti architectural”

- to challenge function-oriented design

- to generate unexpected results

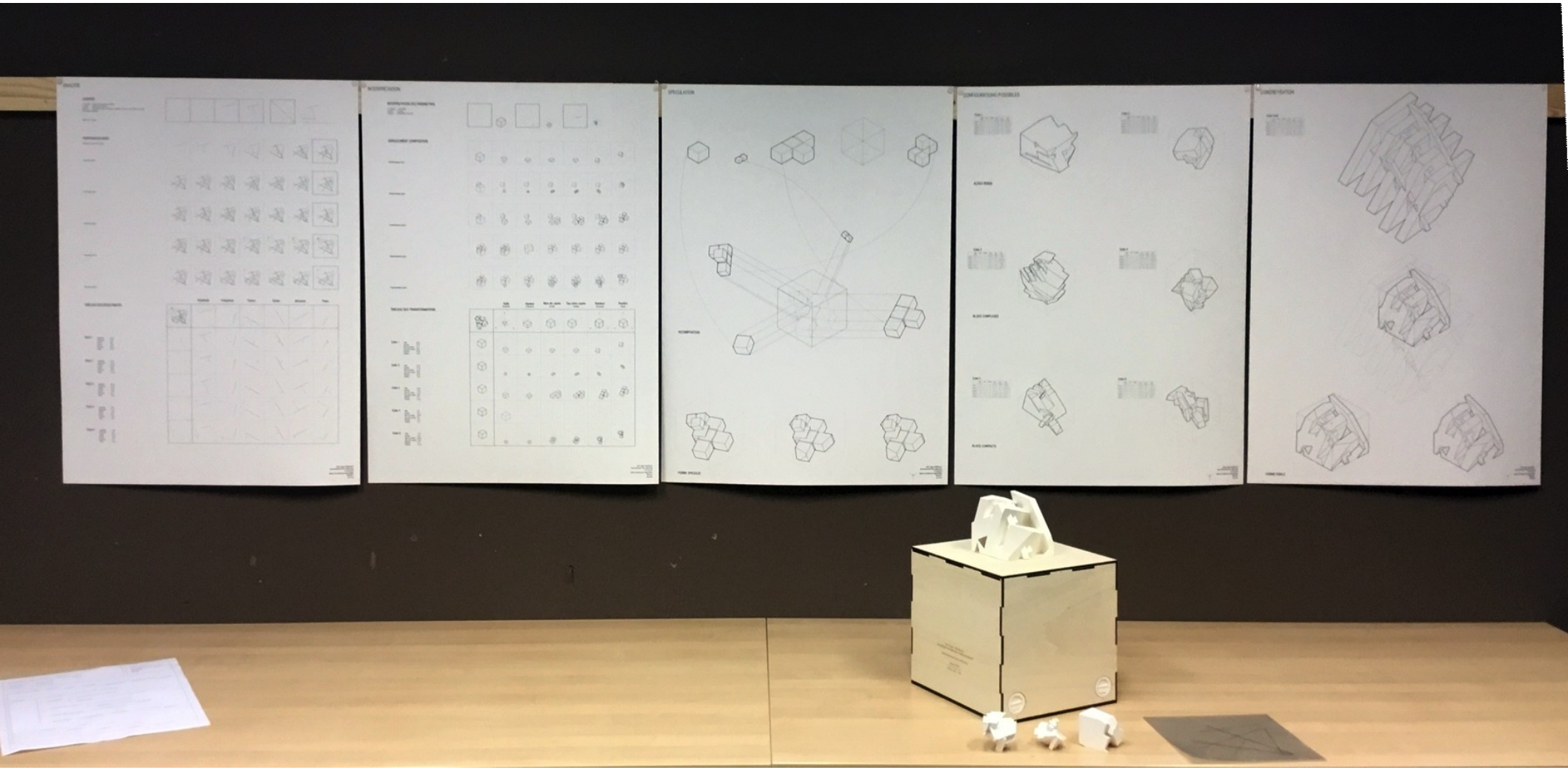
- to open up the field of research

- autonomous and consistent formal language



Analysis & architectural rendition of John Cage's Variation II (1961), David Abrantes Pinto & Mihai Pop, 2018.

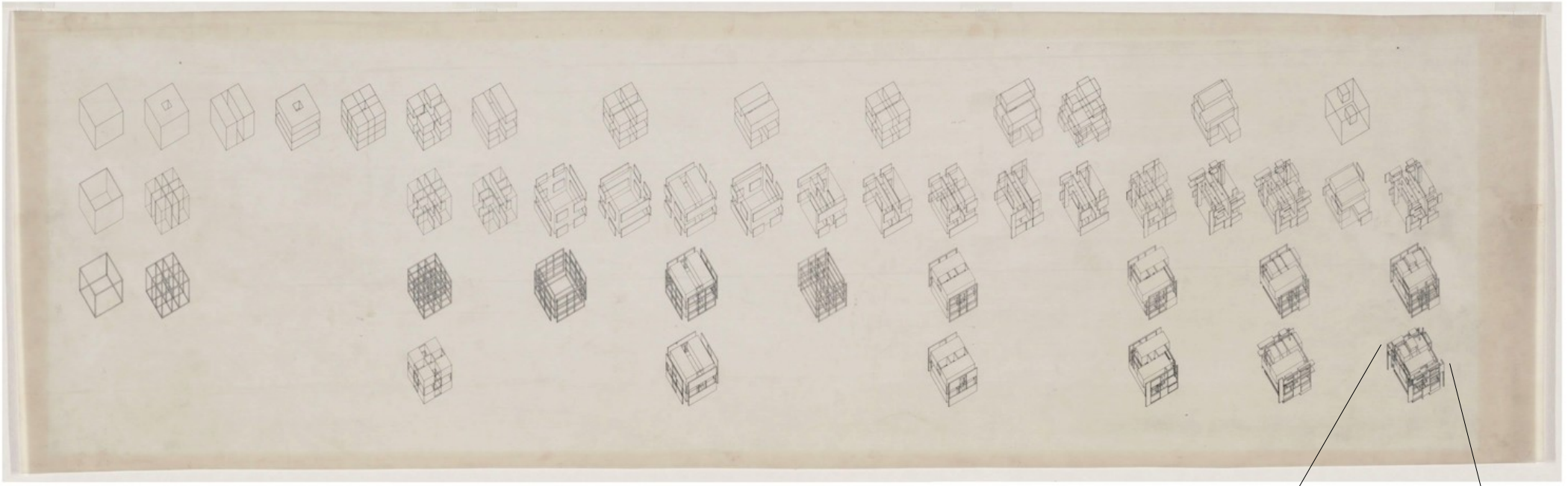
Analysis & rendition of John Cage's Variation II (1961), David Abrantes Pinto & Mihai Pop, 2018.



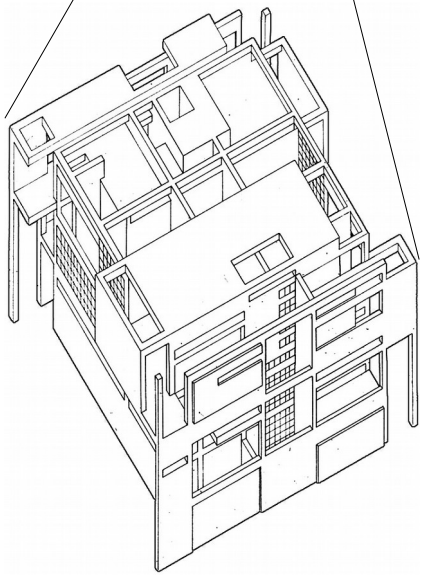
Analysis & architectural rendition of John Cage's Variation II (1961), David Abrantes Pinto & Mihai Pop, 2018.

Peter Eisenman Houses IV (1972)

Graphic Algorithm



Peter Eisenman - Houses IV - 1972

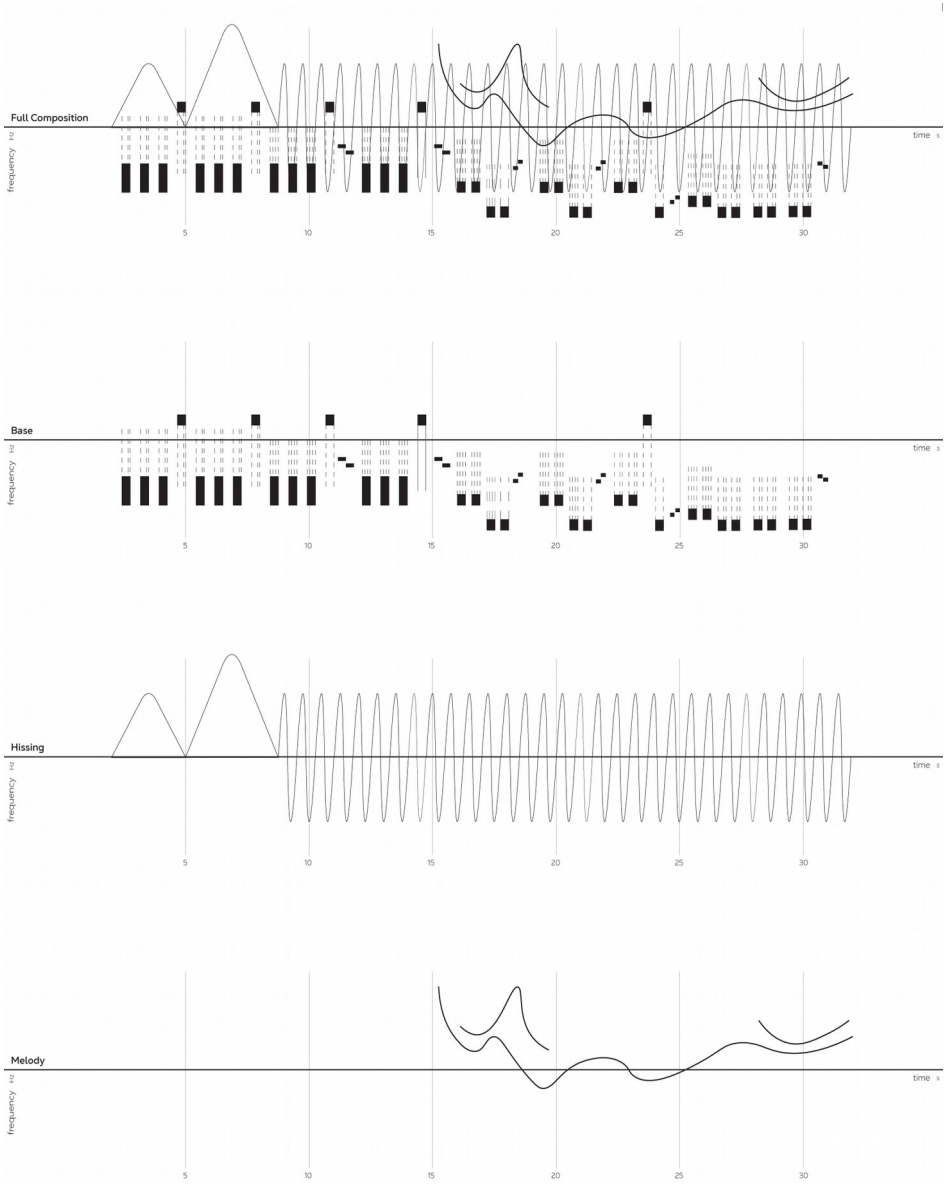


2023-2024 theme

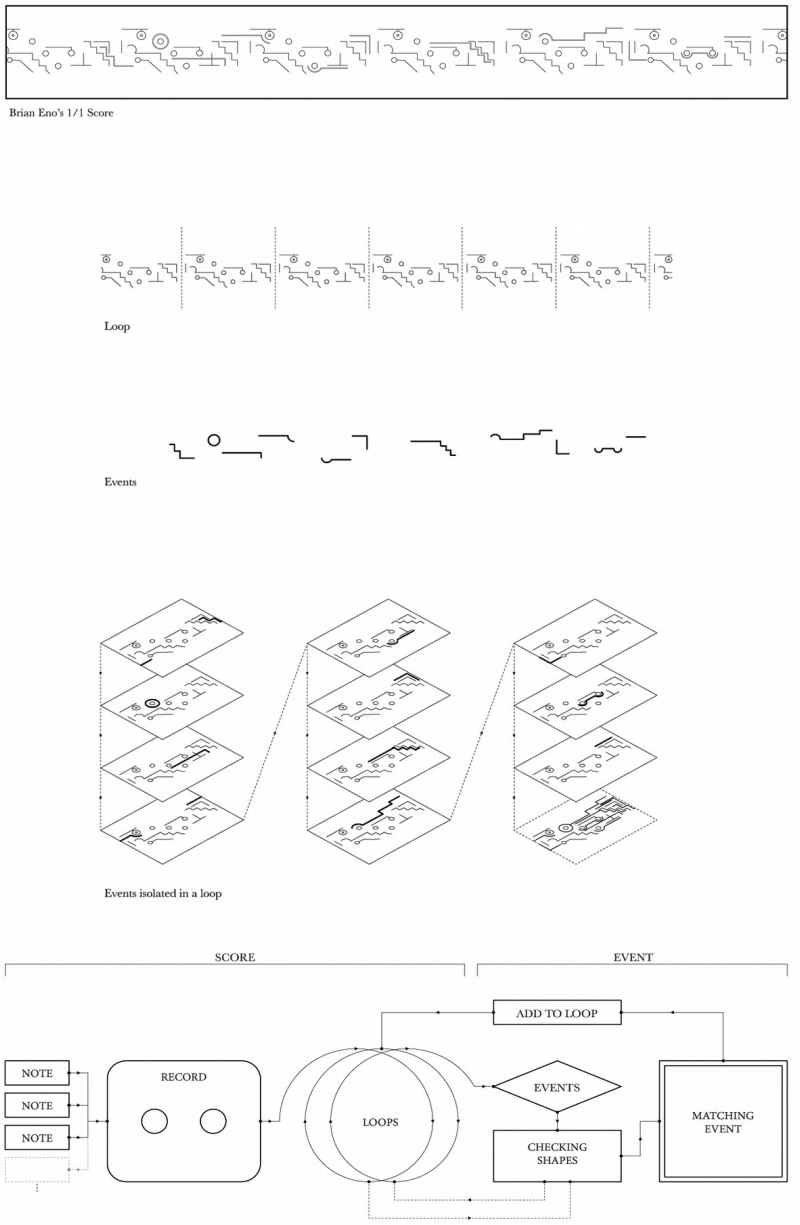
Serialism/ Minimalism/ Generative/ Algorithmic Music

Pre-selected composers:

- Daphne Oram
- John Cage
- Eliane Radigue
- Laurie Spiegel
- John Coltrane
- Delia Derbyshire
- Brian Eno
- Steve Reich
- Joan La Barbara
- Philip Glass
- Delia Derbyshire

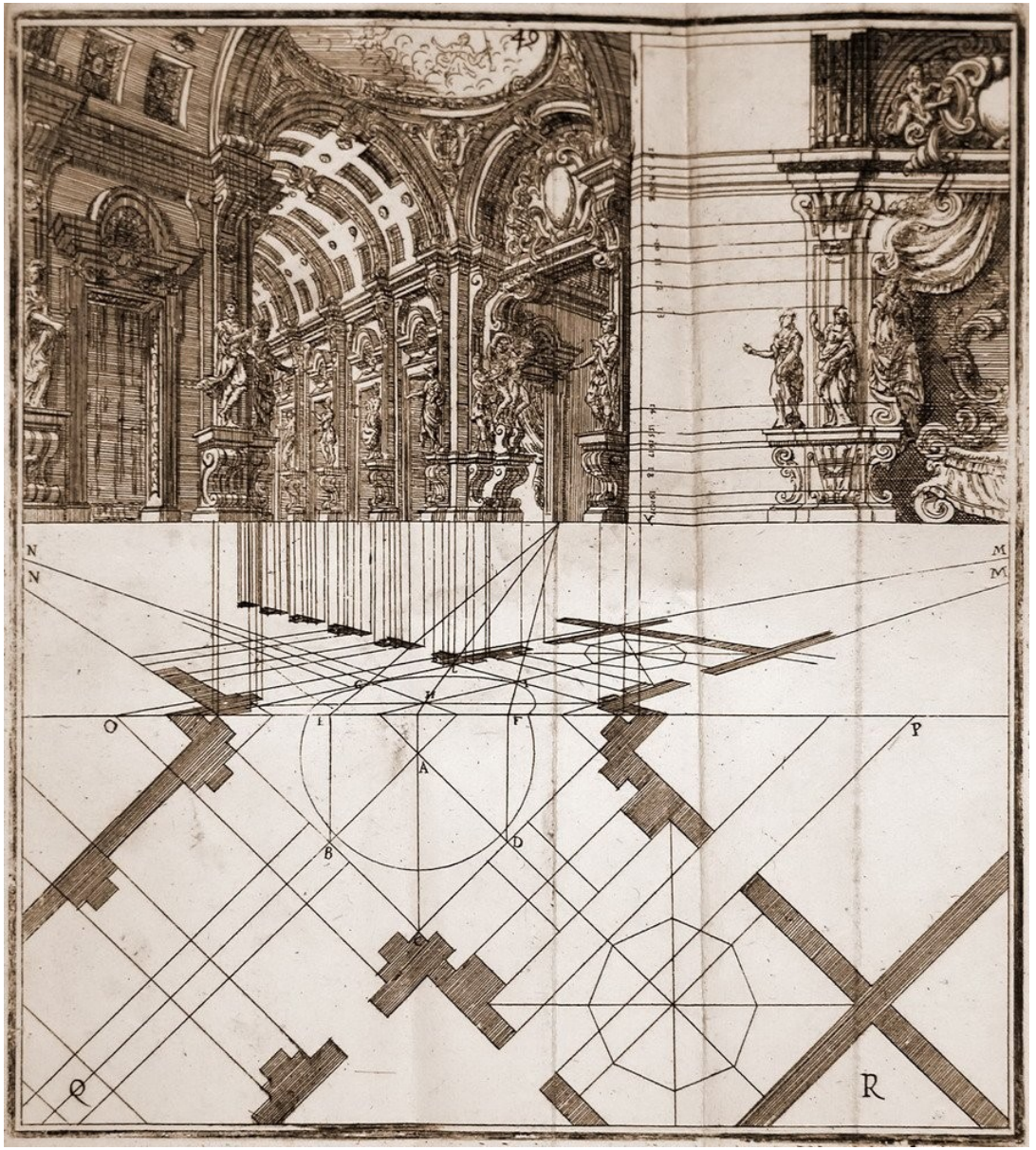


Delia Derbyshire - Dr. Who Theme (1963)
Ji Eun Kim & Khawla Rachadi - Graphic Analysis, 2023.



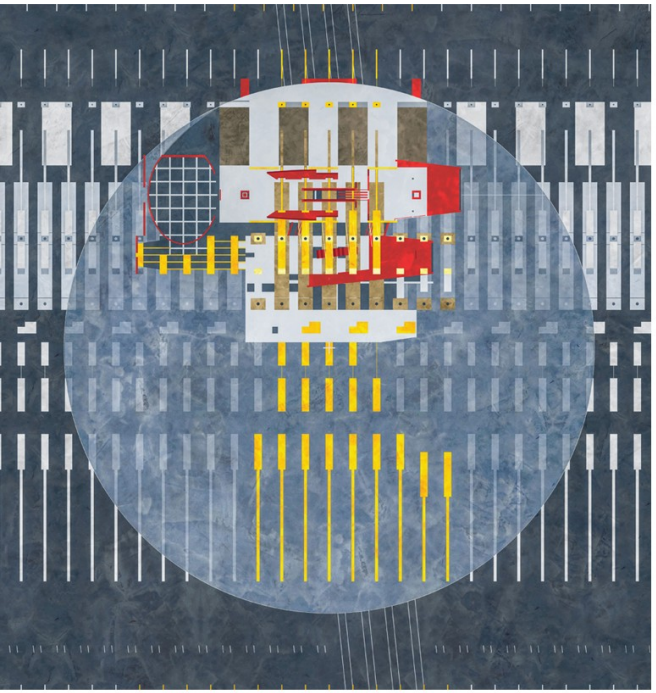
Brian Eno - Ambient #1 Music for Airports (1978)
Gabriel Châtel & Charles Preham - Graphic Analysis, 2019.

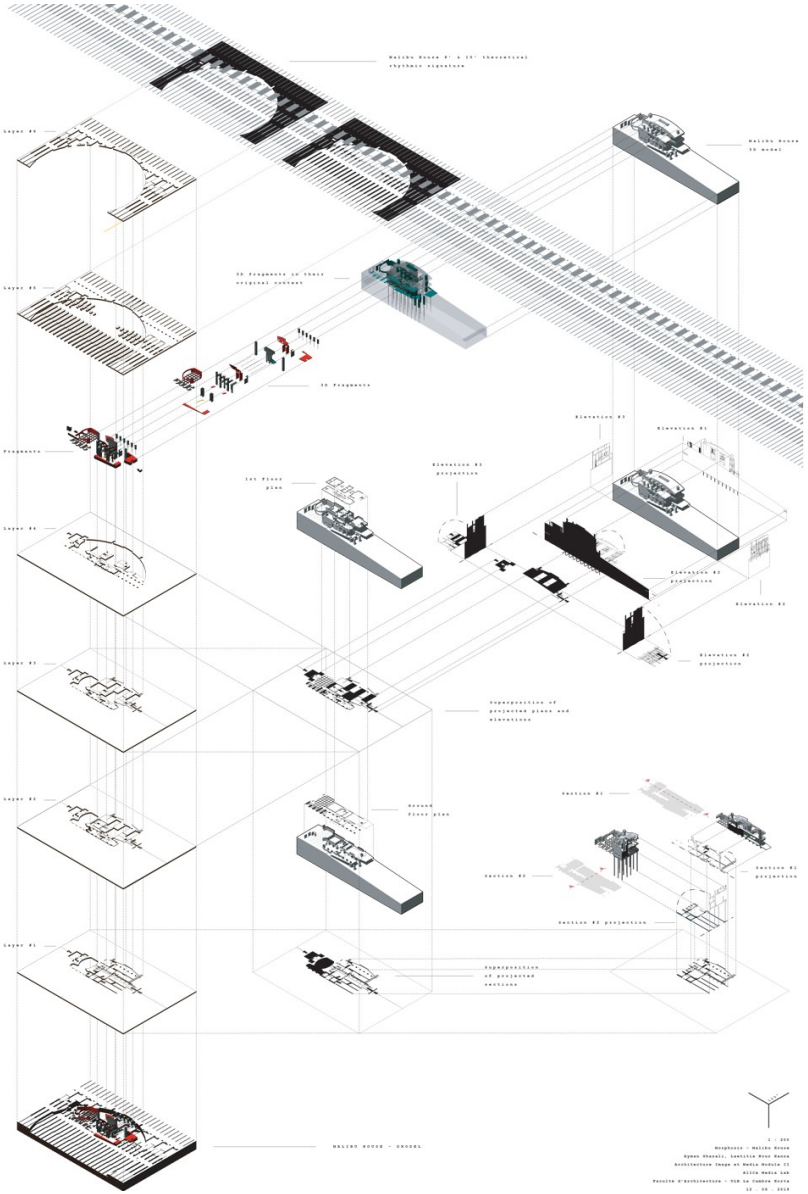
Explicit projection shifts

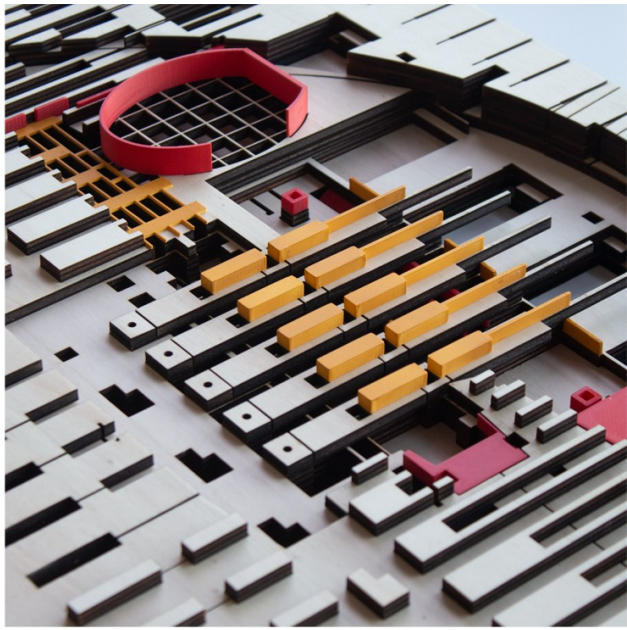


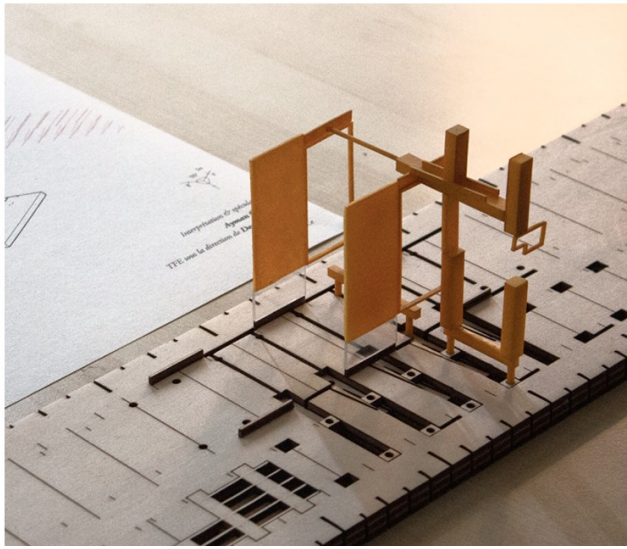
Ferdinando Galli Bibiena (1657–1743), Plate 49 in Direzioni della Prospettiva Teorica…, 1732.

Explicit projection shifts









Malibu House, Morophosis (1986)
Analytical process, interpretive drawing & models
Ayman Ghazali & Laetitia Nour Hanna, 2019-2021

Explicit projection shifts

sketch_axono.py — ~/Git/sketches — Atom

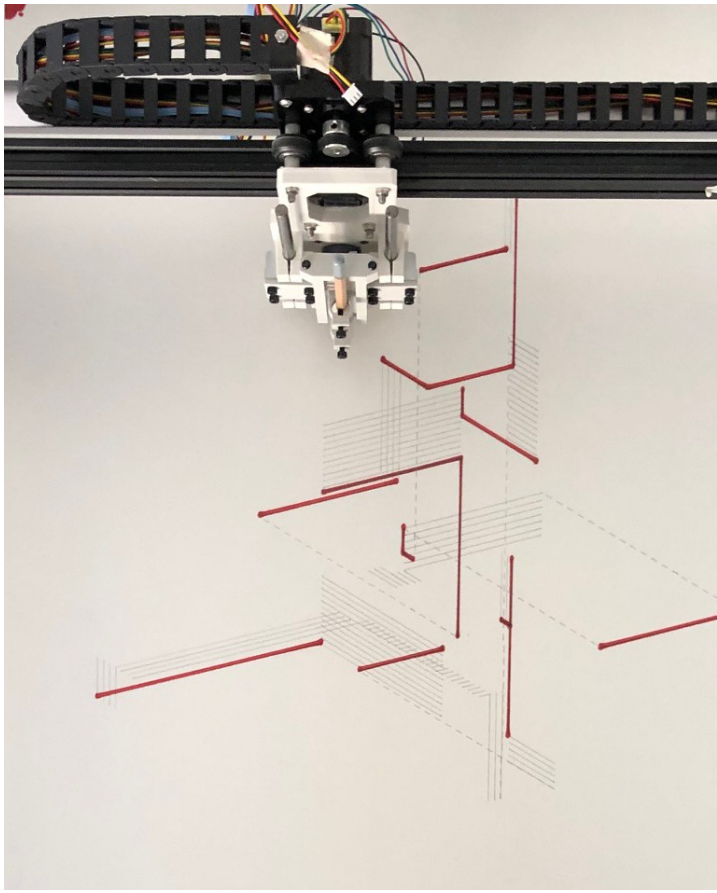
File Edit View Selection Find Packages Help

sketch_axono.py

```
76
77      def _append_line(self, lines, axis):
78          """
79          make a new line starting from the last lines' end coordinate
80          """
81
82          # find end point
83          end_line = lines[-1]
84          end_point = list(end_line.coords)[-1]
85
86          # random distances
87          line_lenght = choice([14.4, 23.3, 37.7, 61.])
88
89
90
91          new_direction = choice([0, 1])
92          direction = self.angles[axis][new_direction]
93
94          # bbox tester
95          on_page = False
96          while not on_page:
97              # vertical movement
98              if 0 in direction:
99                  new_point = (
100                     (end_point[0], (end_point[1]+direction[1]*(line_lenght*2))))
101             # sidewards
102             else:
103                 new_point = (
104                     (end_point[0]+(direction[0]*line_lenght), end_point[1]+(direction[1]
105
106             # switch direction if not in bbox
107             if not self.bbox.contains(Point(new_point)):
108                 new_direction = 0 if new_direction == 1 else 1
109                 direction = self.angles[axis][new_direction]
110             else:
111                 on_page = True
112
113         # add new line to the ewisting ones
114         lines.append(LineString([Point(end_point), Point(new_point)]))
115
116         return lines
117
```

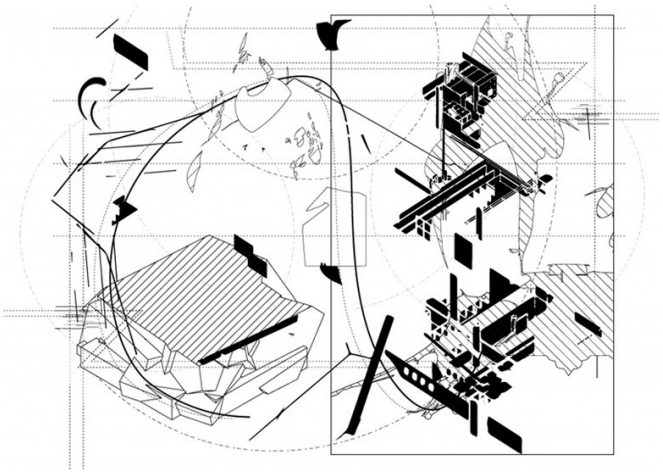
axono/sketch_axono.py* 116:21 LF UTF-8 Python main Fetch GitHub Git (3)

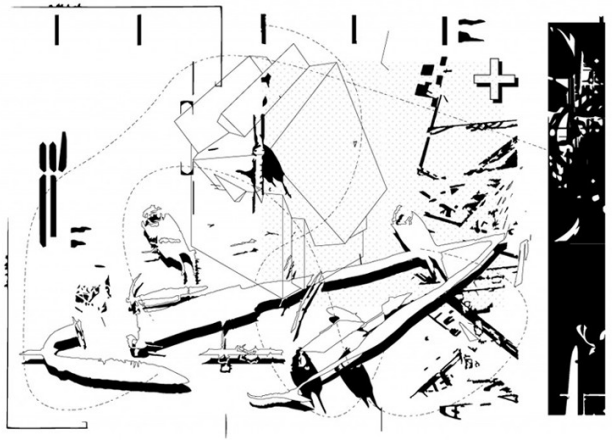
vpype viewer

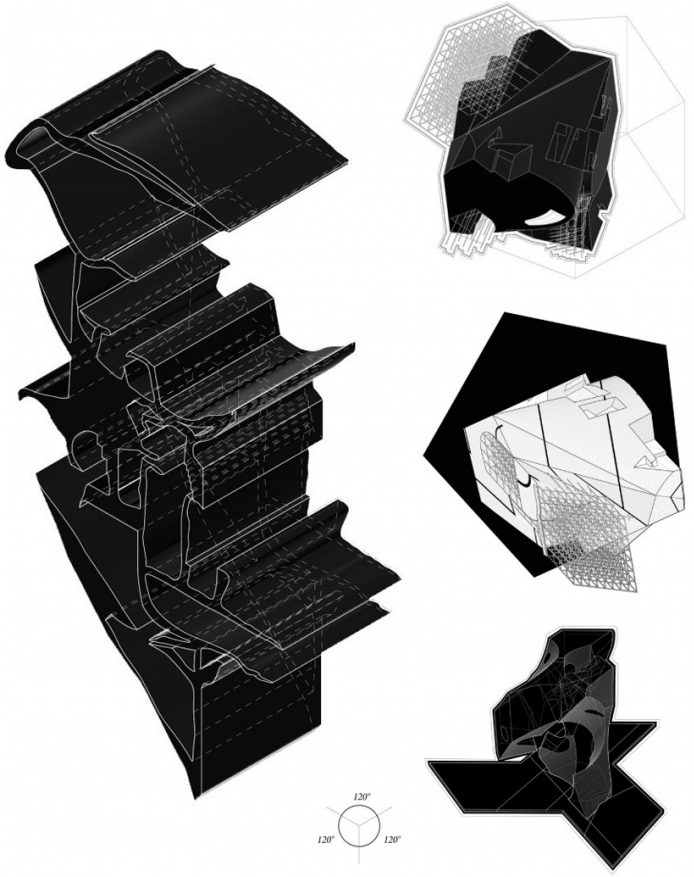


Julien Rippinger, Building Drawings - PhD Thesis (in progress), 2019-...

Explicit projection shift

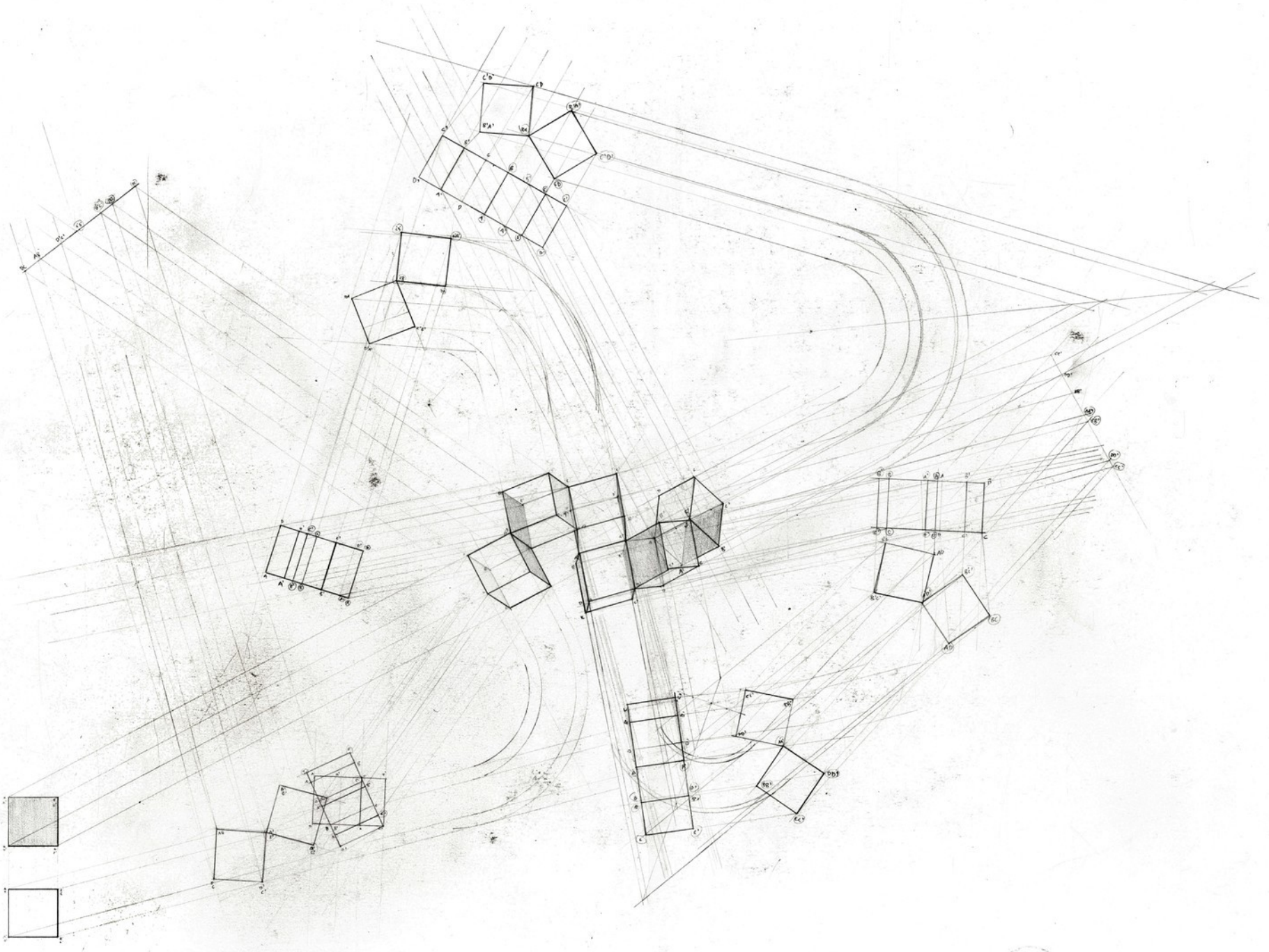






Johan Metzger, Protoarchitecture, 2021.

Explicit projection shift



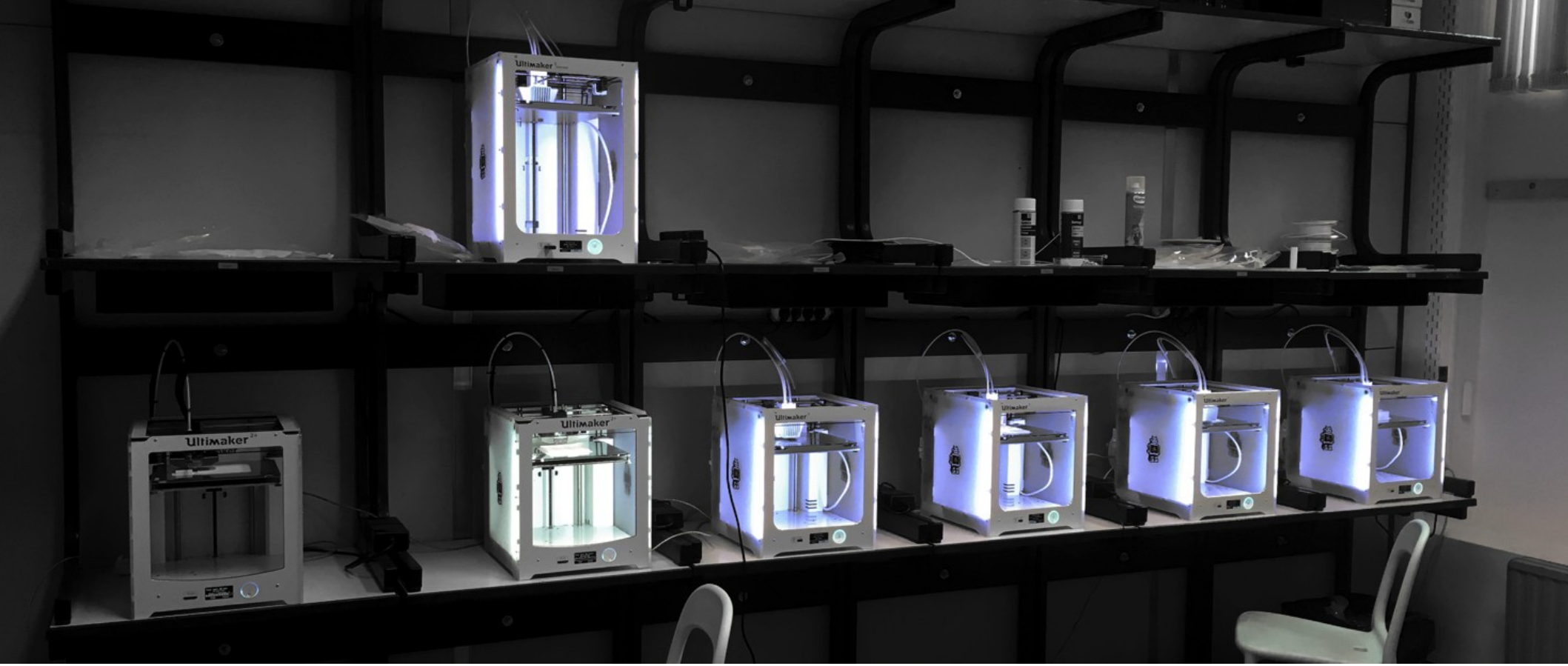
Jonathan Sun - Constructed Geometries and Perspectives, Yale University, 2014.

Explicit projection shift

Analog & digital means

- **Orthographic projections**
- **Multiple sections (CAT Scan)**
- **Axonometric projevctions**
- **Perspective (geometric construction)**
- **Multiple points of view perspectives**
- **Drafting**
- **Free hand drawing**

- **3D printing**
- **Laser cutting**
- **Coding**
- **Plotter**
- **AlICe lab plotter**
- **3D modeling**
- **3D rendering**
- **Computer animation**
- **Real time 3D**
- **Crafting & model making**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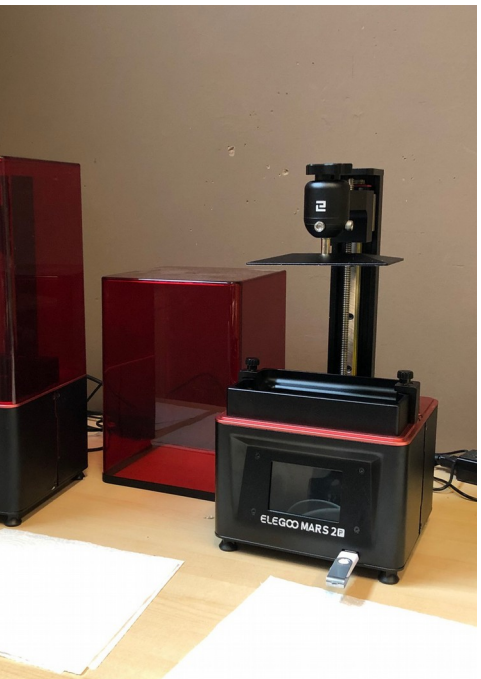
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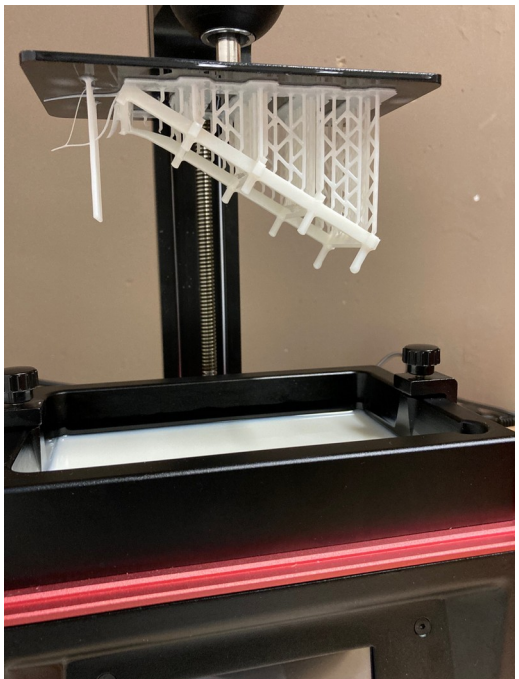

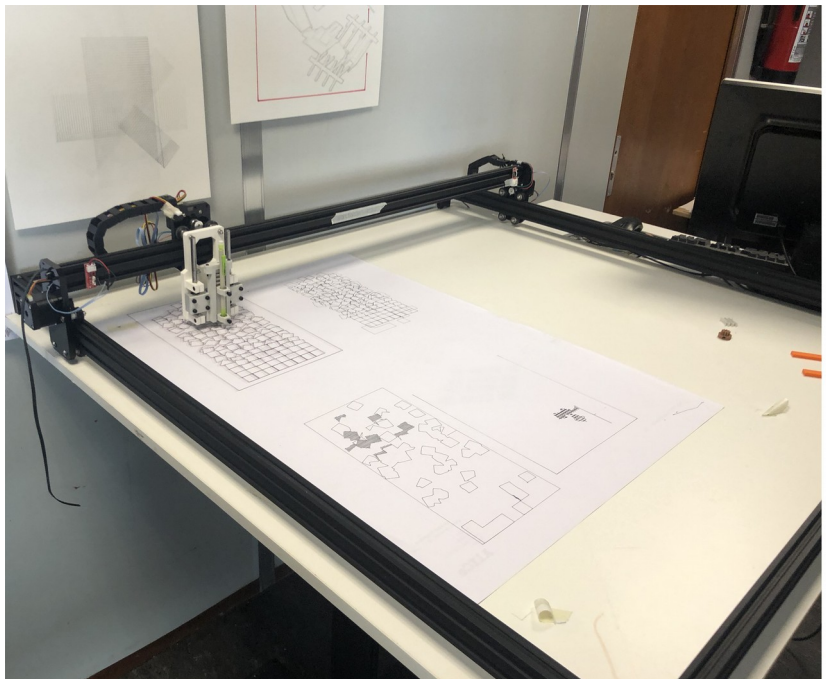

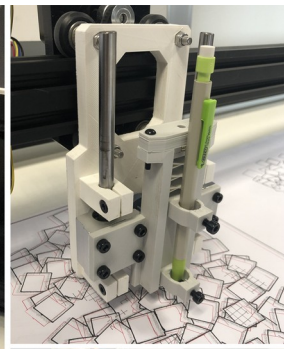

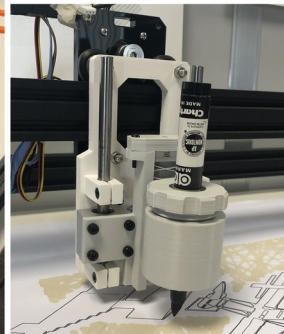

Analysis, Systems & Composition
Graphic algorithm & Projection shifts

Outcomes:

A graphic algorithm designed by using projection shifts

-

3-5 instances of various graphic natures, all generated by that system

-

"Irrational thoughts should be followed absolutely and logically"

Sol Lewitt, Sentences on Conceptual Art, 1969

Objectives

- architectural composition without context
- rules and systems as a method of composition
- graphic representation
- thinking through making
- drawing and crafting

Hands-on, intuitive & practical

but

Rooted in history & theory

AIM Module #1 (ARCH-P7123): Formal Analysis and Computer Process

2023-2024 – first term schedule

Last update: 31/08/23

					SRP			
Week:	1	2	3	4	5	6	7	8	9
Session:	0	1	2	3	4	5			6
	Tue 13 Sep 22	**Thu 21 Sep 23**	**Thu 28 Sep 23**	**Thu 5 Oct 23**	**Thu 12 Oct 23**	**Thu 19 Oct 23**	**Thu 26 Oct 23**	**Thu 2 Nov 23**	**Thu 9 Nov 23**
09:00/10:00-11:00		Lecture #1 Procedural Architecture D. Derycke		Seminar #2 Blender	Lecture #3 Axono & Conventions	Lecture #4 Uri ?	Studio week	Congé	Lecture #5 Axons & Plotters J. Rippinger
11:00-13:00	Module presentation	Seminar #1 Showcase of lab's works D. Derycke	Lecture #2 Graphic Representation & Process D. Derycke		Seminar #3 Axono & rendering (Illustrator/Inkscape)	Seminar #4 3D printing			Seminar #5 Plotter
14:00-16:00		Studio: Introduction & projects choice D. Derycke – M. Lefèvre	Studio: Project follow-up & technical support D. Derycke – M. Lefèvre	**Review: Project outline & graphic tools tests** **D. Derycke – M. Lefèvre**	Studio & Practical Work: Project follow-up & technical support D. Derycke – M. Lefèvre	Studio & Practical Work: Project follow-up & technical support D. Derycke – M. Lefèvre			Studio & Practical Work: Project follow-up & technical support D. Derycke – M. Lefèvre
16:00-18:00									

					SRP				
Week:	10	11	12	13	14	15			19
Session :	7	8	9	10	11				12
	Thu 16 Nov 23	**Thu 23 Nov 23**	**Thu 30 Nov 23**	**Thu 7 Dec 23**	**Thu 14 Dec 23**	**Thu 21 Dec 23**			**Thu 18 Jan 24**
09:00/10:00-11:00	Studio & Practical Work: Project follow-up & technical support D. Derycke – M. Lefèvre	Lecture #6	Studio & Practical Work: Project follow-up & technical support D. Derycke – M. Lefèvre	Studio & Practical Work: Project follow-up & technical support D. Derycke – M. Lefèvre	Studio & Practical Work: Project follow-up & technical support D. Derycke – M. Lefèvre	Studio week			**Final Jury** **–** **D. Derycke** **M. Lefèvre** **J. Rippinger** **U. Wegman** **& al.**
11:00-13:00		Studio & Practical Work: Project follow-up & technical support D. Derycke – M. Lefèvre							
14:00-16:00	**Review: Graphic analysis – decomposition & recomposition scenarios** **D. Derycke – M. Lefèvre – J. Rippinger – U. Wegman**		**Review: First fictional instances** **M. Lefèvre – J. Rippinger – D. Derycke**		**Pre-Jury** **D. Derycke – M. Lefèvre – J. Rippinger – U. Wegman**				
16:00-18:00									

Teachers & lecturers

Denis Derycke
(Coordinator/Teacher)

Michel Lefèvre
(Teacher)

Julien Rippinger
(PhD student/Invited lecturer)

Uri Wegman
(PhD student/Invited lecturer)

The module does not requires any specific skills as a prerequisite...

But full commitment, definitely.

Maximum 20 students