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Laushkina A.A. APPLICATION OF GENERATIVE DESIGN METHODS USING
Basov O.O. MULTIMODAL DATA IN THE FIELD OF ARCHITECTURE AND
URBAN PLANNING

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Abstract

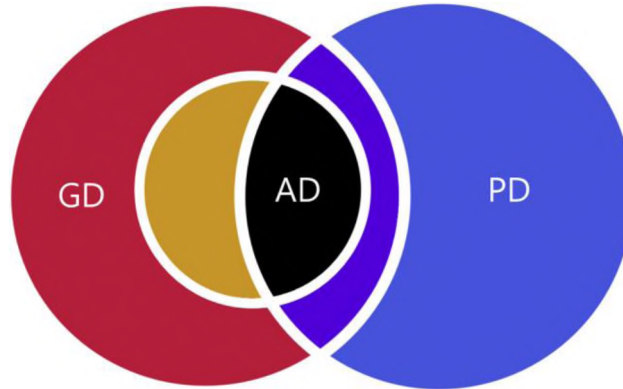
This paper is devoted to the study of generative modeling in design used: this is an iterative
process that generates several output data with consideration to certain restrictions of the input
parameters. Generative design can offer advantages to traditional design as specifically defined
criteria are taken into account early as the conceptual design stage. The purpose of the work was
to study the existing methods and algorithms of generative design in urban planning, taking into

account changes in environmental characteristics. The first step was to determine the input data for the design of the urban structure. The second stage was the analysis of existing solutions. In conclusion, it was The conclusion was made about the various constraints faced by developers, namely: the requirement to make changes in the user mode imposes restrictions on the use of such systems. It is also established that at the moment there is no clear logic by which generative systems can identify contradictions in a set of multimodal data and make a decision on the correspondence of the obtained result to dynamically changing parameters.

Keywords: generative design, planning, data analysis, system, architecture, machine learning.

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(computational design, CD)
 70- 20 . CRAFT [7]
 (. 1):
 CD



. 1. CD

Fig. 1. A conceptual representation of definitions describing various approaches to design relative to the CD paradigm

1. **Generative Design (GD)** -

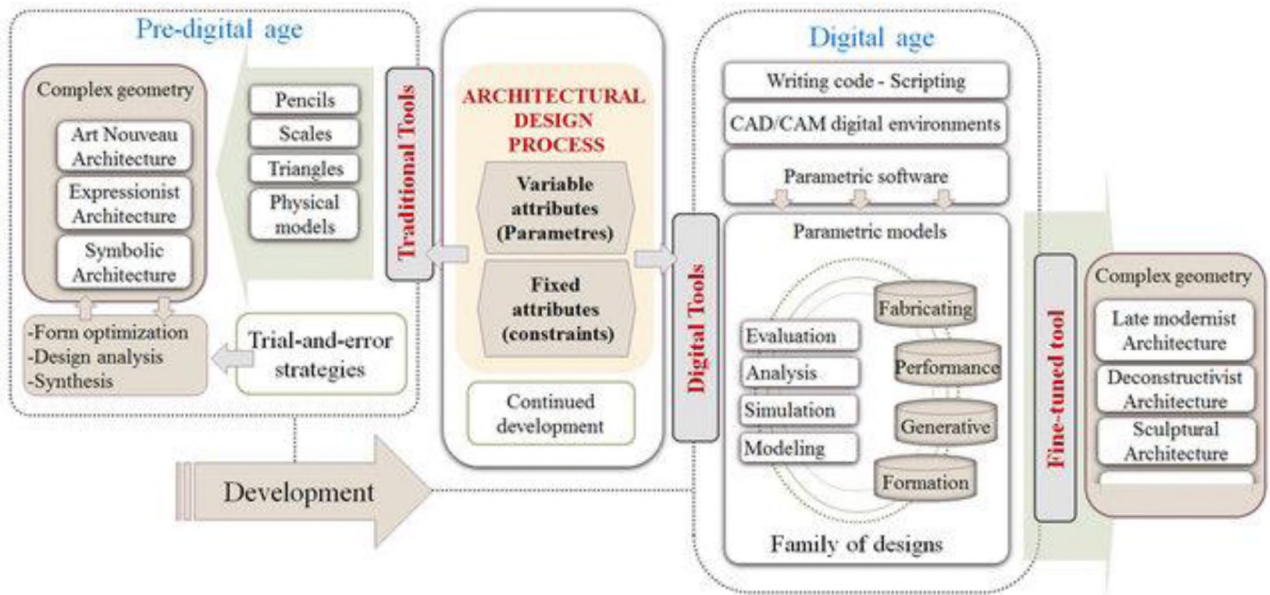
2. **Algorithmic design (AD)** - GD,

3. **Parametric Design (PD)** -

[14].

GD, AD PD, AD PD, AD

(. 2) [6].



. 2.

[14]

Fig. 2. The conceptual structure of the architectural design process [14]

[11].

[15],

[1 1].

(,) ,

GD.

^

1)

GD,

(

2)

3)

4)

2000-

3D

[18]

Grasshopper:

Faro Focus

Rhinoceros 3D

(BIM)

[6, 7, 11].

Python

GD

[1, 5,

16].

[9]

Autodesk Fusion 360.

[8]

BIM

Python, L-
 « » shape grammars (« ») [13].

GD

- 1) /
- 2) /

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