Отчет

Владимир Садовский

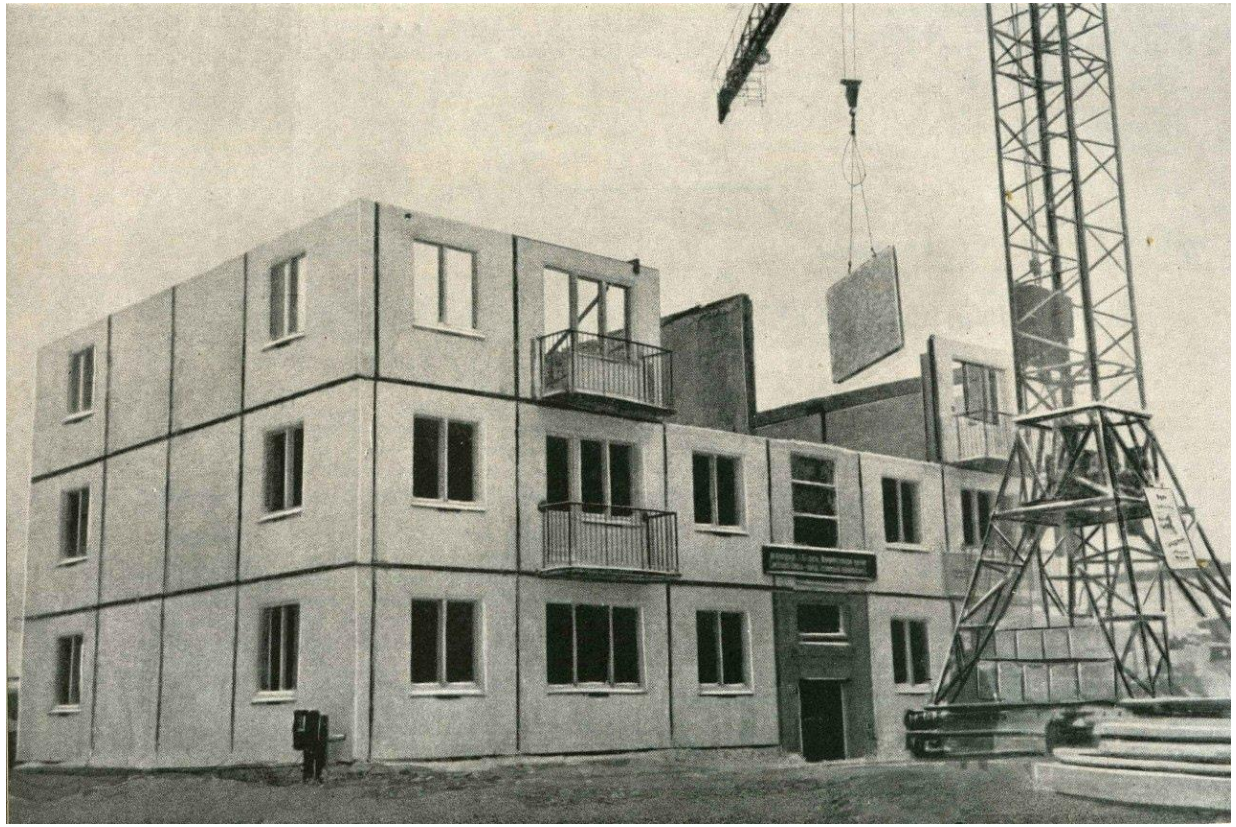
Алгоритмы генерации

- L-системы
- Генетические алгоритмы
- Много агентные системы
- Генетические алгоритмы
- Генерация на графах
- Генерация по сетке (в том числе произвольной)
- WFC

Building Blocks: Artist Driven Procedural Buildings

Типовая застройка

- 1ЛГ-600
- П-43
- Э-93
- II-57
- И д.р.



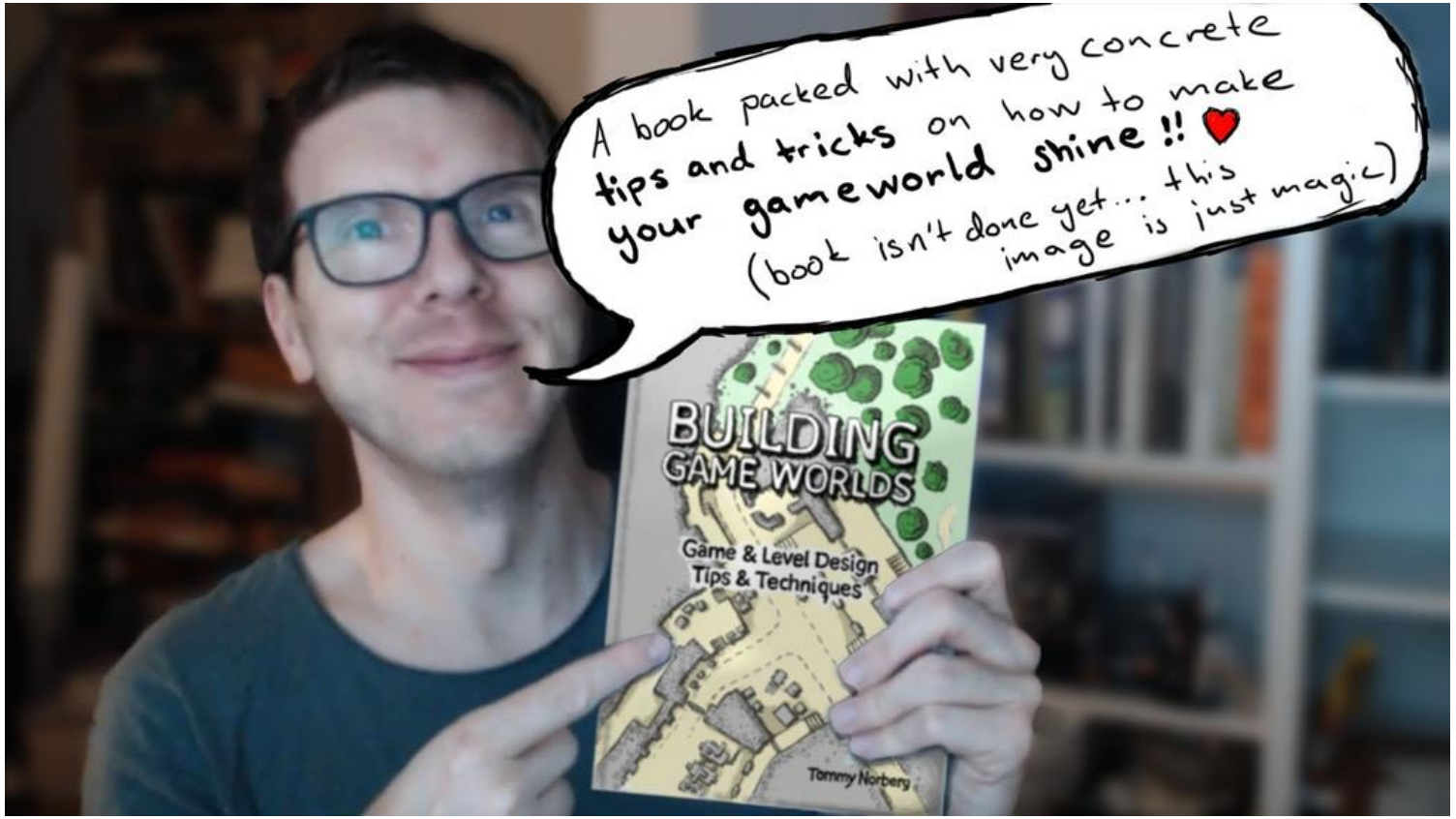
Выбор серии дома

1ЛГ-600

- Описание серии с примерами секций (в том числе и поворотных)
- Проектную документацию серии 1ЛГ-600А
- Планировки
- И планировки этажей
- А также много не типовых примеров

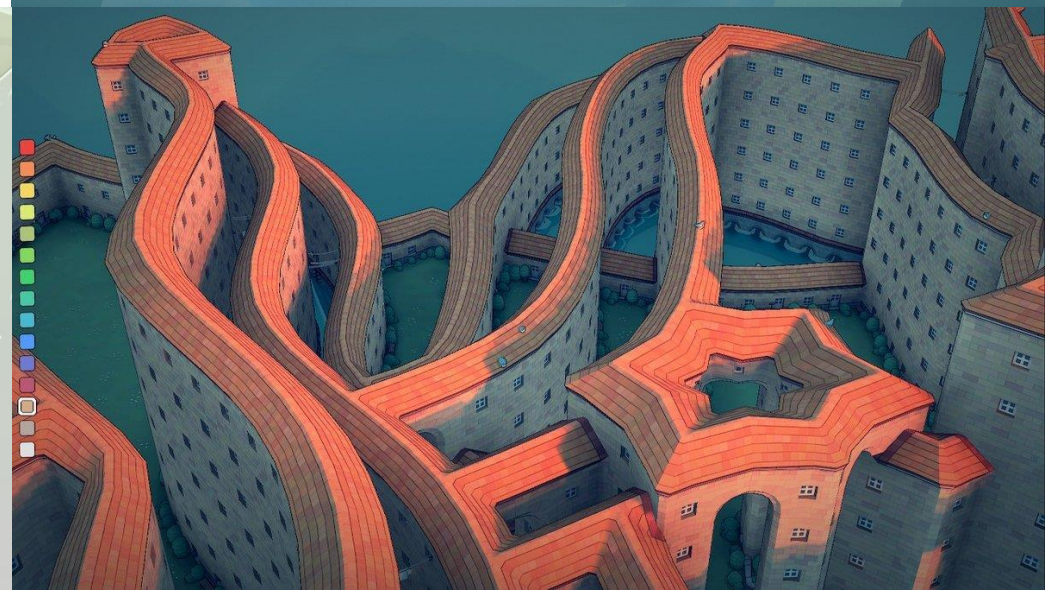
Tommy Norberg

- https://twitter.com/the_Norberg
- PayDay2
- Syndicate
- Just Cause 2



Oskar Stålberg

- https://twitter.com/OskSta
- BadNorth
- TownScape



WFC

Search

	Row Name	Sockets	Create rotated prototypes	Create X-flipped Prototypes	Create Y-flipped Prototypes	Weight	Density From Height
1	empty	("o","o","o","o","o","o (")	0	False	False	1.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
2	empty_inside	("n ["," n ["," n ["," n ["," n")	0	False	False	1.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
3	cob	("br -br +bl ["," o]","o]","bl -bl +br ["," cor [=","cor [=")	3	False	False	1.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
4	cog	("gr -gr +gl ["," o]","o]","gl -gl +gr ["," cor [=","cor [=")	3	False	False	1.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
5	cos	("sr -st +sl ["," o]","o]","sl -sl +sr ["," cor [=","cor [=")	3	False	False	1.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
6	cot	("tr -tr +tl ["," o]","o]","tl -tl +tr ["," o]","cor [=")	3	False	False	1.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
7	cub	("bl -bl +br ["," br -br +bl ["," o","o","cut [=","cut [=")	3	False	False	1.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
8	cug	("gl -gl +gr ["," gr -gr +gl ["," o","o","cut [=","cut] =")	3	False	False	1.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
9	cus	("sl -sl +sr ["," sr -sr +sl ["," o","o","cut [=","cut [=")	3	False	False	1.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
10	cut	("tl -tl +tr ["," tr -tr +tl ["," o","o","o]","cut [=")	3	False	False	1.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
11	wab	("n ["," br -br +bl ["," o","bl -bl +br ["," wall [=","wall [=")	3	False	False	1.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
12	wag	("n ["," gr -gr +gl ["," o","gl -gl +gr ["," wall [=","wall] =")	3	False	False	1.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
13	was	("n ["," sr -sr +sl ["," o","sl -sl +sr ["," wall [=","wall [=")	3	False	False	1.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
14	wat	("roof ["," tr -tr +tl ["," o","tl -tl +tr ["," o]","wall [=")	3	False	False	1.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
15	roof	("roof ["," roof ["," roof ["," roof ["," o","n (")	3	False	False	1.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
16	bw	("bw ["," bwr -bwr +bwl ["," o","bwl -bwl +bwr ["," o","wall [=")	3	False	False	5.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
17	cobl	("bl -bl +br ["," wabwr -wabwr +wabwl ["," bwr -bwr +bwl","o","cut [=","cut [=	3	False	False	5.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
18	cobr	("wabwl -wabwl +wabwr ["," br -br +bl ["," o","bwl -bwl +bwr ["," cut [=","cut [	3	False	False	5.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
19	cubw	("cbwl -cbwl +bwr ["," cbwr -cbwr +bwl ["," o","o","o","cut [=")	3	False	False	5.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
20	cin	("n ["," n ["," sr -sr +sl ["," sl -sl +sr ["," cin [=","cin [=")	3	False	False	5.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
21	cinb	("n ["," n ["," br -br +bl ["," bl -bl +br ["," cin [=","cin [=")	3	False	False	5.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
22	cinbw	("n ["," n ["," wabwr -wabwr +wabwl ["," wabwl -wabwl +wabwr ["," cin [=","cin	3	False	False	5.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
23	cing	("n ["," n ["," gr -gr +gl ["," gl -gl +gr ["," cin [=","cin] =")	3	False	False	5.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'
24	cint	("n ["," n ["," tr -tr +tl ["," tl -tl +tr ["," o]","cin [=")	3	False	False	5.000000	CurveFloat'/Game/EZLG/DensityCurves/Density_Equal.Density_Equal'

Row Editor

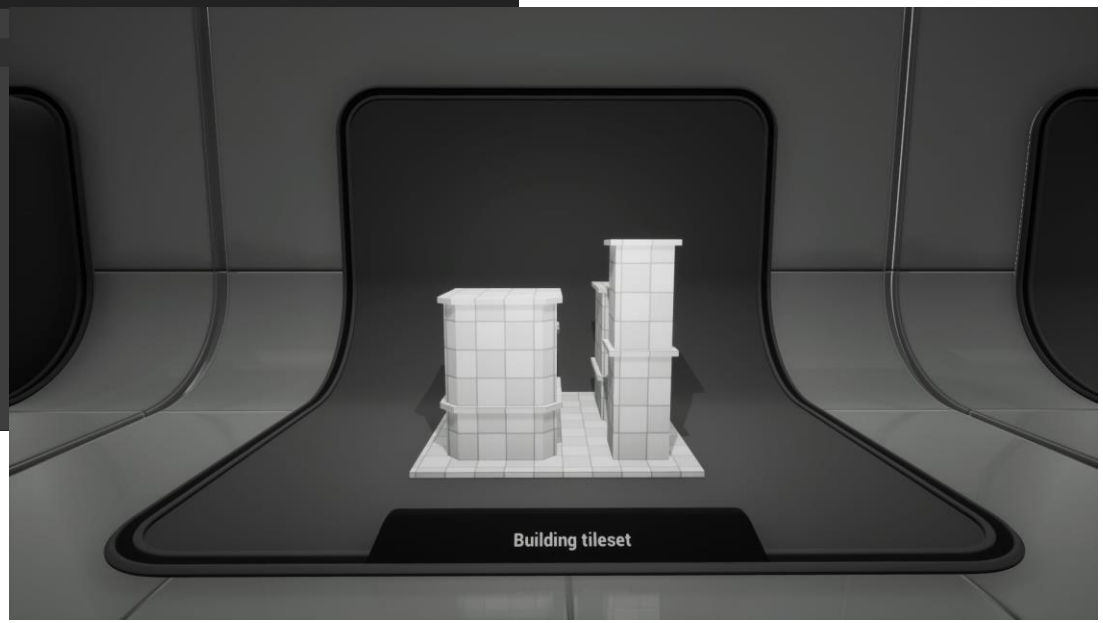
wag

wag

Sockets — 6 Array elements

0: n [
1: gr -gr +gl [
2: o
3: gl -gl +gr [
4: wall [=
5: wall] =

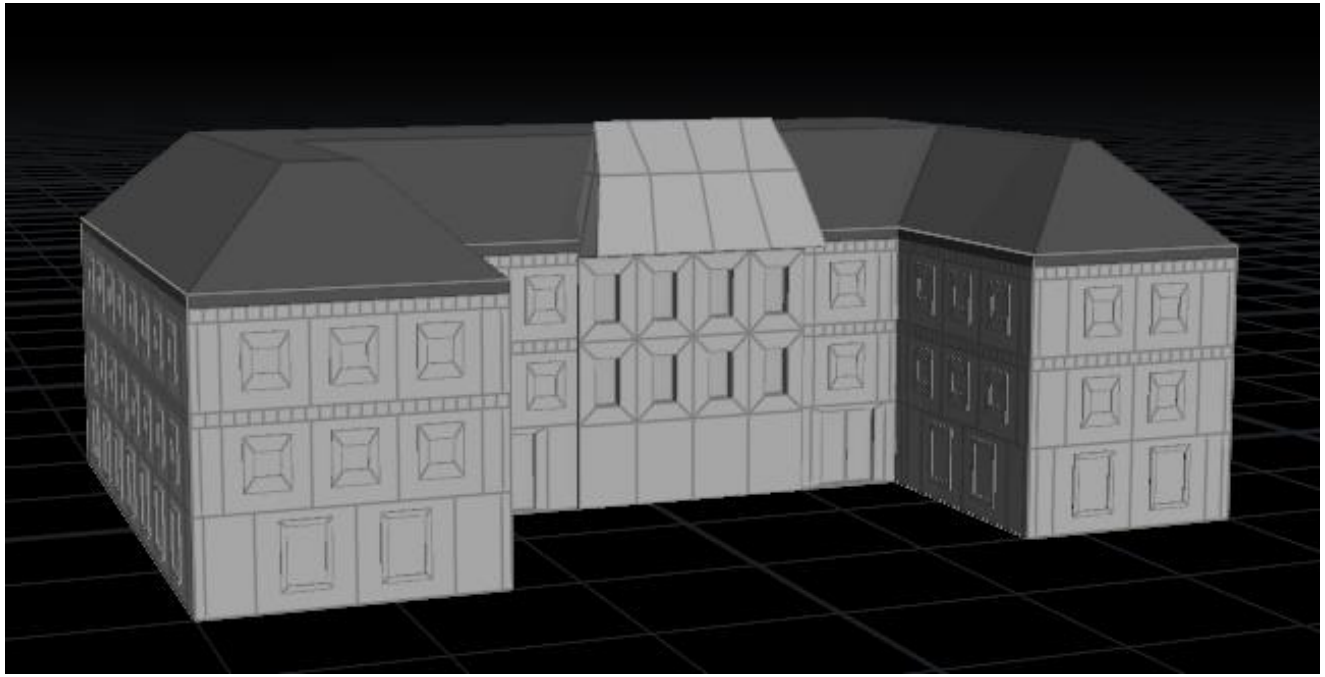
Create rotated prototypes: 3
Create X-flipped Prototypes:
Create Y-flipped Prototypes:
Weight: 1,0
Density From Height: Density_Equal



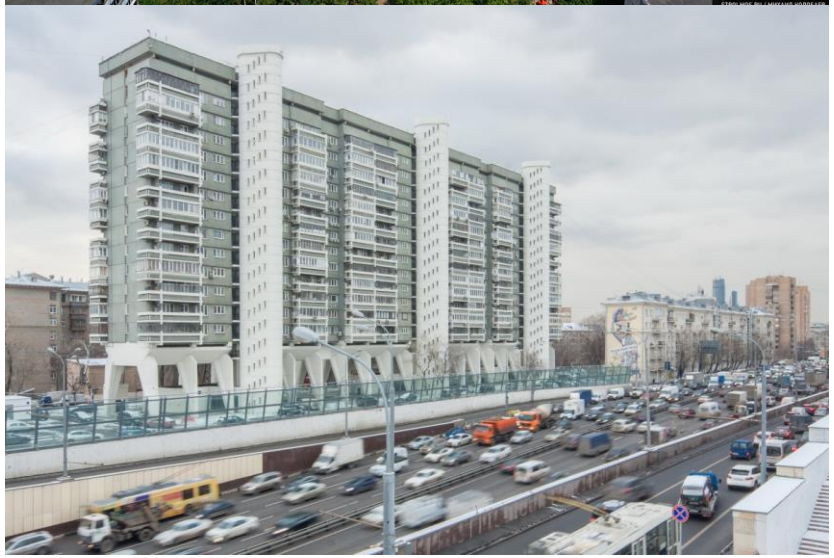
Современная проектная документация

Houdini

- https://www.sidefx.com/tutorials/building-generator/
- https://www.sidefx.com/tutorials/procedural-city-1-building-generator/

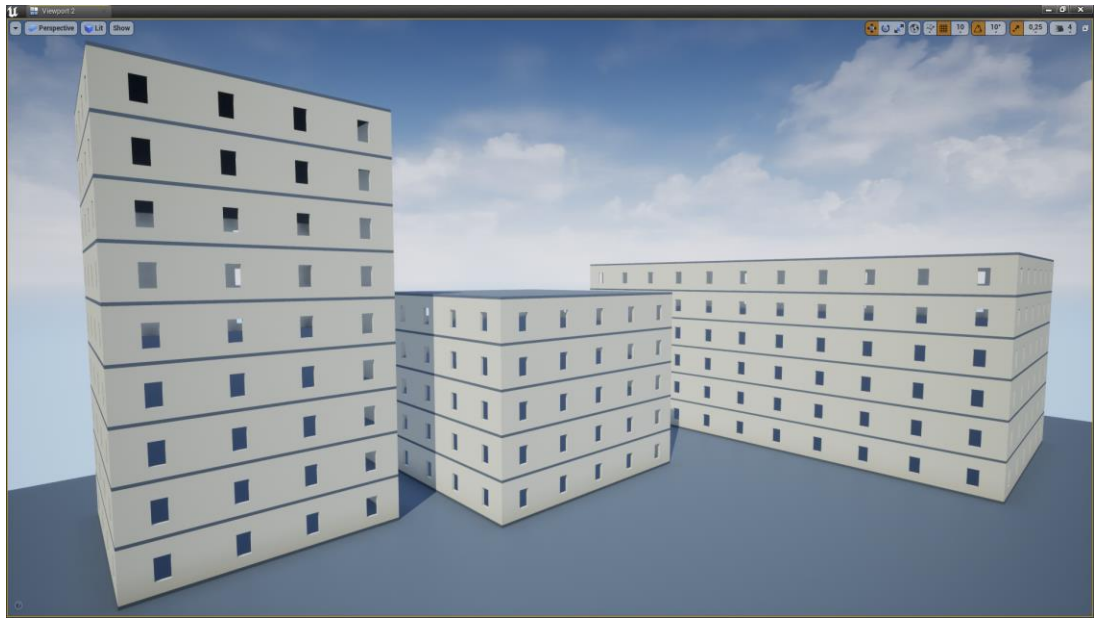


Изучил



Быстрый старт работ

- Можно генерировать квадратные здания, у которых можно менять размеры и высоту этажей.
- Нет нормального фундамента, крыши, чердака, входной группы и т.д.
- Нет дополнительных визуальных эффектов.
- Нельзя генерировать дома произвольной формы.



Статьи

- https://www.sciencedirect.com/science/article/pii/S2666629421000012
- https://link.springer.com/content/pdf/10.1007%2F978-3-540-73325-6_117.pdf
- https://www.reddit.com/r/dataisbeautiful/comments/r1tcw2/oc_automatic_urban_generation_built_from_open/
- https://web.ics.purdue.edu/~tmcgraw/papers/kifs_mcgraw_2015.pdf

Планы

- Формализовать граф строения дома.
- Изучить проектную документацию более тщательно.
- На основе проектной документации начать моделирование частей.
- Попробовать ген. алгоритмы для генерации фундамента здания.
- Какие ни будь алгоритмы для добавления декалей и пр. визуальные эффекты.

Проблемы

- Очень мало информации о генерации не квадратного гнездовых строений.

Идеи

- Критерий Ритма
- Критерий соляризация
- Критерий параллельности

- Строительство дома сверху?
- Передвижение домов

- User case
- Work flow