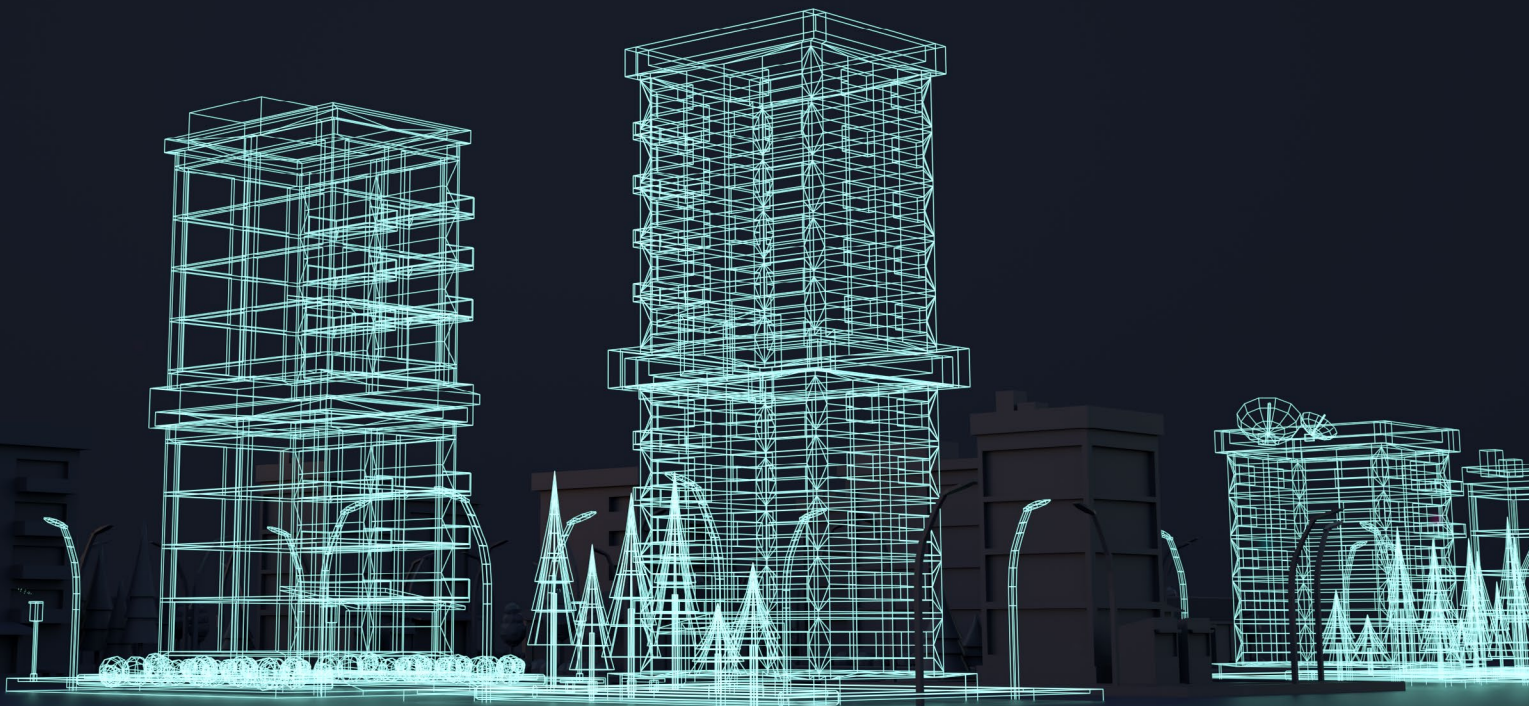




SKYLINE

S Y N T H C I T Y

Synthetic City Simulator



AI-Powered Real Estate Simulation

The current market is an uncertain one, characterized by the accumulation of dry powder, shrinking profit margins, and signals indicating the approaching end-of-cycle. We are also seeing fluctuating interest rates along with emerging models such as shared working spaces and retail migration to online. **To predict the long-term behavior of the multifamily market under these conditions** and determine the most beneficial investment strategies in the widest set of future scenarios, a robust simulator is crucial.

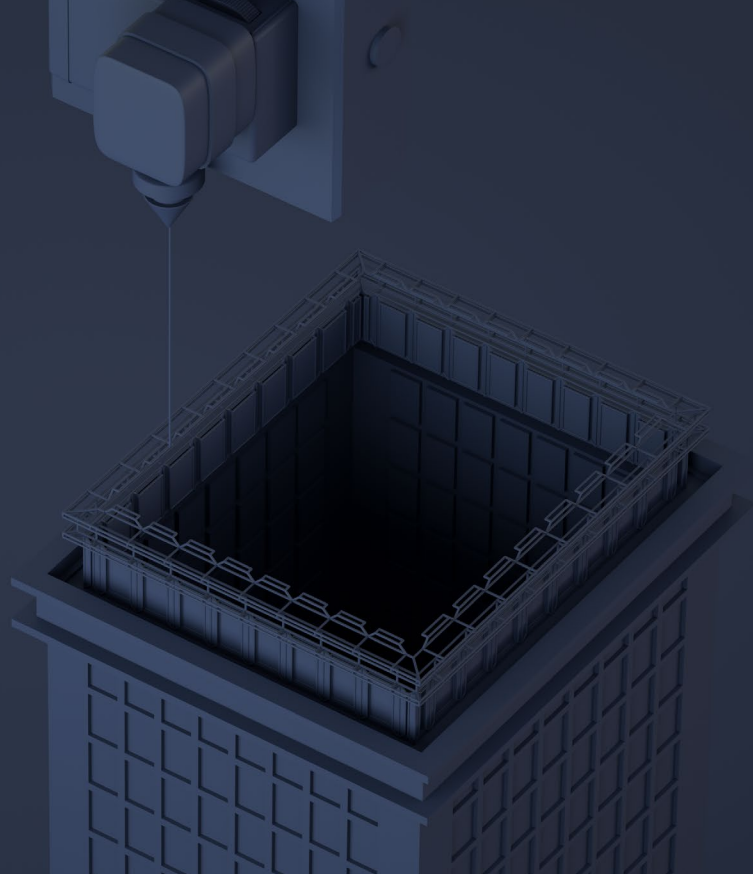
Based on this understanding, the concept of “Synth City” was born. This multifamily market simulator - will help glean authentic and real-world actionable real estate investment insights.



What is Synth City?

A synthetic city simulation can create an artificial multifamily city model as a way of amplifying currently existing data sources. Real-world multifamily assets are a good start, but as data gets bigger, deep machine learning is becoming even more effective as a way of enabling quality predictions in complex scenarios.

As one example, there are far fewer multifamily properties in the US than there are single-family residences, and correspondingly, much less available data for multifamily machine learning. Our synthetic city simulator will level the playing field by creating a **database made of millions of artificial assets that serve as an expanded platform for deep real estate analysis.**



Key Objectives of Synth City



Run “what-if” scenarios on the entire market, synthesizing or even recreating specific market conditions such as those leading up to the 2008 recession



Provide a richer environment for training new prediction models, which tend to suffer from sparse data



Allow for improvement of models based on new emerging features only discoverable where there exists enough data to run them



As the synthetic base generates independently of the production environment, our simulator allows us to experiment with different results without risking or giving away real data



The ability to supplement missing information to infer correct values in real data. This is especially useful in situations of data scarcity



Apply “sanity checks” - ensuring our models are generalized enough to obtain reliably accurate results



Internal AI functionality used by our data scientists, allowing us to constantly improve in our data quality and accelerate obtained results

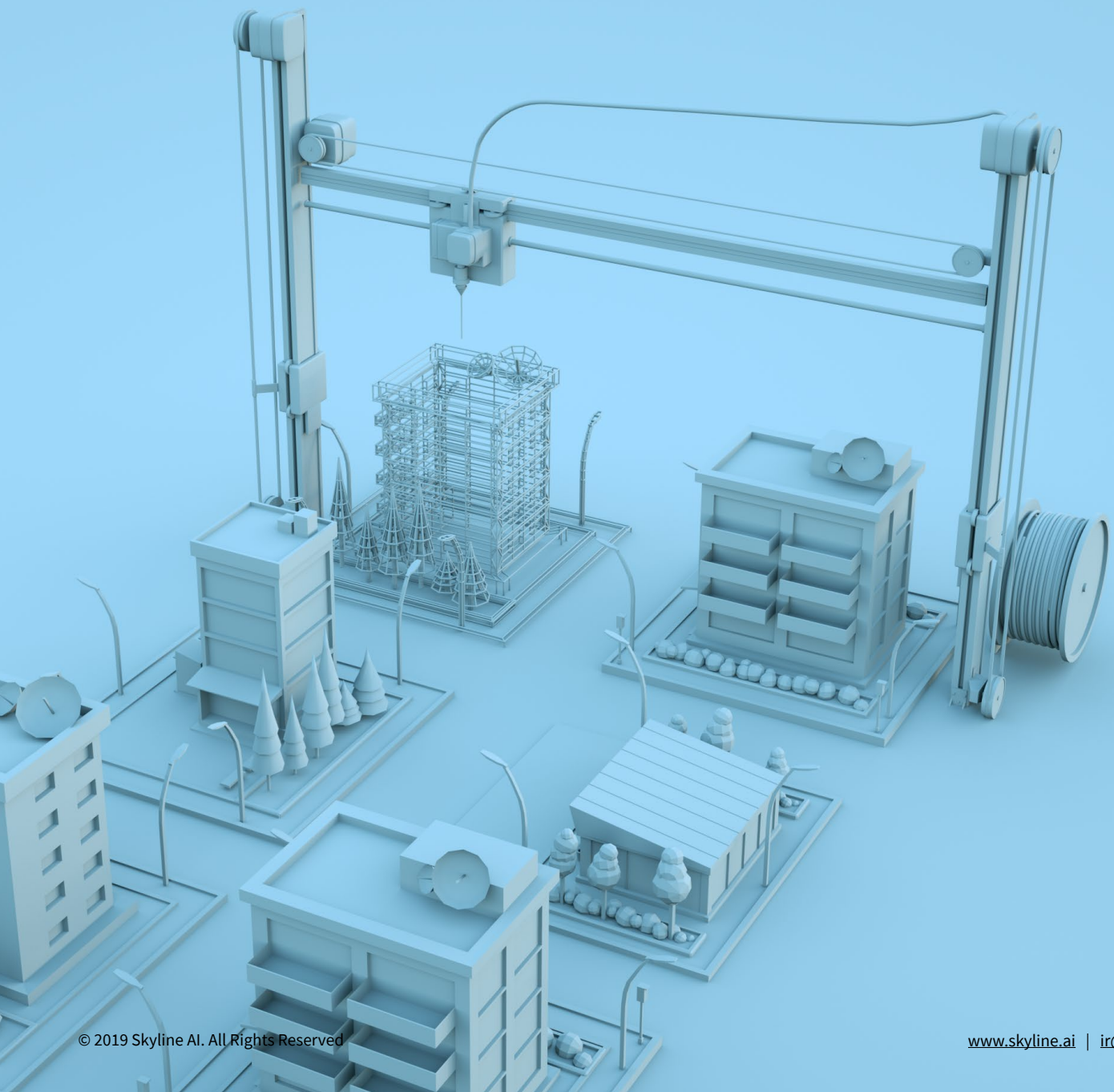


Achieve more accurate insights on rent prices, home-value trends, market anomalies, risk-reward ratios, and much more

Synthetic Data Generation

Synthesizing data can help supplement missing data with actionably accurate simulations, bridging the predictive model gap between single family residential units and smaller asset classes such as multifamily and commercial. It also enables better testing of current models, authenticating their robustness to market dynamics. **Artificially synthesized data will help us gain deeper real-world insights than ever before possible.**

Synthetic data generation dates back to the 1990s, and is increasingly utilized today as a way of filling in gaps on data-heavy platforms where data is scarce or otherwise difficult to obtain. One prominent example of an innovative sector that has successfully used synthetic data is the autonomous vehicle industry. Data scientists realized that instead of driving around endlessly recording street mapping information, traffic, and other ambient data, it would be much faster and cheaper to train the car's neural networks by simply using artificial data to create a simulation that replicated normal street driving.



The Science Behind Synth City

Using a machine learning system called a Generative Adversarial Network (GAN), two robotic rivals interface constantly to build out Synth City.

The Generator:

A data generator whose job it is to create impossible additions to our city, trying to pass them off as realistic, practical, and viable assets. The generator's objective is to get these additions past the gatekeeping classifier and incorporated into the synthetic city.

The Detective:

The detective is a data classifier which works to detect and block unrealistic entries. Its job is to guard the city against the generator's additions which could threaten its plausibility as a true-to-life replica city. A simple example of an inadmissible asset (and ideally, easily caught by the detective) could be the attempted placement of a high rise residential in a neighborhood zoned for three-story townhouses.


Both machines improve in their respective roles as they go along, and the better they get over time, the harder each other's job becomes - which is exactly what we want. This check-and-balance interplay allows for the creation of realistic additions to the synthetic city, and over time, the emergence of a plausible artificial city.

Enhanced Predictive Power

The objective of Synth City is to generate real estate data which will be as close to reality as possible, allowing Skyline AI's data scientists and engineers to quickly and continuously improve the company's data quality and accelerate its process results. As such, the synthesizer will be capable of generating simulated transactions and other features of normal urban centers, **mimicking real life scenarios based on current data features.**

The advantages of this addition to our data strategy toolbox are vast and far reaching. The synthesizer is capable of generating abundant data on demand. In time, it will enable "homegrown data" to become increasingly realistic in conjunction with natural data growth.

The eventual goal of our synthetic city and the data it yields is **enhanced predictive power**, giving an edge to Skyline AI - and by extension, its partners - by enabling us to test investment strategies and find out which are most beneficial in the widest set of future scenarios. The results of these and other data-based predictions ensure alpha for our investors in a variety of market conditions.



Skyline AI is the artificial intelligence investment manager for commercial real estate. Skyline AI partners with leading commercial real estate firms to establish next-generation investment vehicles augmented by artificial intelligence. Founded in 2017, Skyline AI is backed by Sequoia Capital, JLL, TLV Partners, Nyca Partners, DWS group and others. The company has offices in New York and Tel Aviv.

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