# Real Estate Digest

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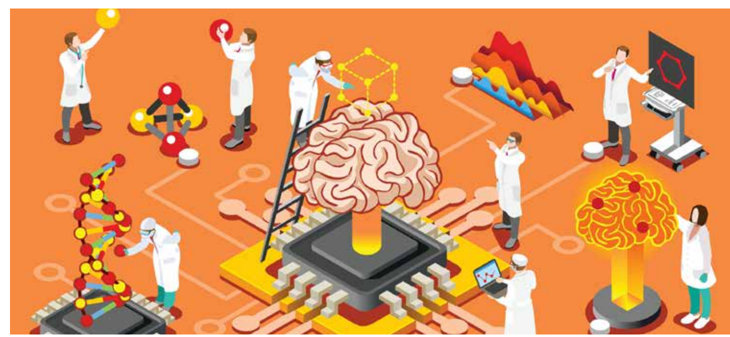
# Can Machine Learning and AI Detect the Next Area To Be Impacted by Gentrification

Over the past decade, concerns about gentrification have increased as affluent and educated residents move back into cities. With rising home prices that displace existing residents, understanding these patterns is essential for investor and real estate professionals.

However, is it possible to detect the pattern of future gentrification by using machine learning and AI? New research from a team of data scientists and geographers say it is. They also explored the potential benefits of using this technology to predict gentrification.

## Study Used Machine Learning Models to Predict Gentrification Patterns

The research, conducted by Jonathan Reades, Jordan De Souza, and Phil Hubbard of Kings College London and published in the *Urban Studies* journal, made use of machine learning to train computer models to learn from past data and predict future patterns. In this study, the researchers used historical data about past gentrification in London to predict where it would occur next.



## Model Developed For 2011, 2021 Gentrification Patterns

In the study, researchers used machine learning to review 2001 data in order to make predictions about gentrification as it occurred in 2011. Using the same model, the algorithm predicted where gentrification will occur in 2021. It started by measuring socioeconomic status using four key variables: household income, real estate val-

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ues, occupational share (percentage among the "top" occupational classes) and job qualifications (in regard to percentage of residents who achieved a certain level of a national vocational certification).

Once the researchers calculated the socioeconomic status of every neighborhood, they analyzed other demographic measures of the population, including age and ethnicity to identify how they correlate with gentrification. The neighborhood data is based on the UK's Lower Layer Super Output Area (LSOA). This area is similar to a U.S. census tract of roughly 1,000 to 3,000 people.

The 2001 model was then able to predict what happened in 2011 with a high level of accuracy. There was a very close statistical fit, in comparison to other traditional models such as standard regression analysis. Upon the availability of data for 2021 gentrification the team will have a chance to review the predictions made by machine learning to determine accuracy.

### Key Demographic Factors Do Not Predict Gentrification

Unlike popular assumptions about the impact of demographics on gentrification, machine learning also uncovered that some key demographic factors were not predictors for gentrification. The presence of "DINKs" (Dual Income, No Kids couples), vehicle ownership, or ethnicity, were not strong predictors for gentrification. Immigration patterns were able to predict gentrification but this only applied to immigrants who were from countries that are members of the EU (as of the 2001), the Americas and Australia and New Zealand.

### Further Research Needed to Assess Machine Learning Benefits in Understanding of Urbanization

The paper concludes with a discussion of the implications of the modelling. Machine learning was used in this study in order to use London as a test site to uncover which neighborhoods in a city are expected to gentrify next. It was successful in proving that future gentrification patterns can be identified by using machine learning.

However, researchers also recommend that qualitative work on gentrification and neighborhood change be complemented by predictions from other more extensive methodologies. Only then can it be determined if machine learning can truly help researchers to understand the complex urbanization process and make future predictions.

## Homebuyers Think of Their Pets When It Comes to Real Estate


A recent survey from Realtor.com revealed that homebuyers consider their pets when purchasing their homes. Roughly 80 percent of the 1,000 recent homebuyers surveyed reported they are pet owners with 78 percent saying they would forgo their dream home if it did not work for their pet as well.

Additionally, 87 percent of the homeowners with pets said they took their pets' needs seriously when searching for a home. Up to 90 percent said they consider their pets' needs to be essential to their home purchase decisions.

"Dogs are man's best friend," Realtor.com Chief Economist Danielle Hale said. "It's not terribly surprising that when pet owners are buying a home, their best friends get what they want. If a home doesn't meet the needs of their pets, those needs are non-negotiable for a lot of homebuyers."

The survey also uncovered that dogs were the preferred pet of homeowners (64 percent), followed by cats (41 percent), birds (12 percent), and fish (1 percent).

Families with small children and younger homebuyers are the

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most likely to be pet owners. When the researchers asked these homebuyers to rank the three most important home features for their pets, 45 percent said a large yard, 36 percent said an outdoor space, 33 percent said garage space. These features were very influential on their decision to either move or look for other properties.

## Millennials and the American Dream of Homeownership

Many millennials are still actively looking to achieve the American dream of buying their own homes. But for some in this generation, the dream is dying, dead, or is just something they no longer want to pursue.

The millennial American dream looks something like this: owning a home, becoming debt-free, retiring comfortably, and pursuing lifelong goals. The Bank of the West's annual Millennial Study revealed that only 54 percent of millennials believe the American dream is attainable. Nearly 25 percent of millennials say that they've already given up on homeownership.

As home prices continue to rise, homeownership has become increasingly difficult for millennials, with less than half of millennials owning homes. The majority of millennials are renting (46 percent) or living with family and friends (12 percent). Only 42 percent of millennials own a home.

Sixty-eight percent of millennials who have already purchased a home say they have buyer's remorse, and wish they had prepared more, had more money for a down payment or done a more thorough inspection of the home before they purchased it.

Major complaints among millennial homeowners are that their homes are costly to maintain (20 percent) or that they uncovered damage to the property after moving in (20 percent).

## Millennials Prefer Advice of Influencers Over Real Estate Agents

A new study by Engel & Völkers revealed that most high-earning millennials rely on "influencers" to make purchase decisions and roughly 80 percent said they would hire one as a real estate agent. The survey included more than 1,000 millennials born between the years 1982 and 1999 with a yearly income of more than $100,000, called "High Earners, Not Rich Yet," or "HENRYs."

The topics of the survey covered a range of consumer habits. For the real estate investment portion of the study, the rise of the "real estate influencer" is significant given that 84 percent of HENRYs confirmed that "influencers have impacted their decision to make purchases."

The study also found that 98 percent of HENRYs rely on social media or review-based websites, such as Yelp, in order to make purchase decisions. However, HENRYs do not only rely on online information and social media influencers when it comes to choosing a real estate agent.

The top three factors for HENRYs in selecting a real estate agent are referrals from friends and family (59 percent), reputation within the local neighborhood (53 percent), and local neighborhood expertise (50 percent).

## Rising Sea Levels Hurt Coastal Real Estate Prices


Climate change and rising seas are already negatively impacting coastal real estate prices across the country, according to a new study. In a paper for the *Journal of Financial Economics*, researchers compared home price information from real estate website, Zillow,

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with sea level rise data from the National Oceanic and Atmospheric Administration.

The study found that homes exposed to rising seas sell for approximately seven percent less than similar properties that are not at risk of flood damage.

"Even if the properties aren't going to experience physical damage today, people are going to pay less for them if they expect they will incur damages in the future," said Matthew Todd Lange Gustafson, an assistant professor of finance at Penn State University and a co-author of the study.

The price discount is mostly led by real estate investors and homeowners looking to purchase a second home, who are generally considered to be more sophisticated investors. However, the trend also extends to first-time homebuyers.

Researchers looked at data from the Yale Climate Opinion Maps and found that in the regions of the U.S. where there are greater numbers of people expressing concerns about climate change, exposed homes that are being sold as primary residences are selling at an 8.5 percent discount overall.

## 'Schools' Top List of Most Important Factors for Homebuyers


Homebuyers, even when they do not have children, understand the connection between top-rated schools and high home values. However, for buyers with children, school district is one of the top factors in buying a new home.

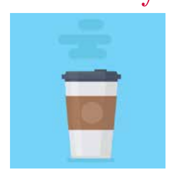
A survey of 1,000 people done by Realtor.com found that 73 percent of home buyers believe good school boundaries are an important part of the home search. Only 18 percent of buyers said that school boundaries were unimportant or very unimportant. Just 9 percent were neutral about schools.

For some homebuyers, the opportunity to buy a home in a preferred school district is even worth giving up some desired home features. Homebuyers in sellers' markets reported that they would be willing to give up a garage (19 percent of homebuyers who prioritize schools) or an updated kitchen (17 percent).

Buyers also said they would give up having a large yard (18 percent), opt for fewer bedrooms (17 percent) or forego having an outdoor living space (16 percent) just to be able to live in a home within their desired school district.

Although school districts often earn the reputation as "good" or "bad," fair-housing laws require that real estate agents direct their clients to school data or school districts instead of recommending specific schools.

## Study Finds Impact of Starbucks on Nearby Home Prices



The appearance of a new Starbucks in a neighborhood has long been considered an indication of gentrification. However, a Harvard Business School study confirms the impact of Starbucks in real numbers: a half percent spike per year in nearby home prices.

Researchers looked at the volume of Yelp reviews for various businesses, namely upscale coffee shops, and compared them with data from the Census Bureau, Zillow and other sources. The analysis uncovered a consistent effect.

"If a new coffee shop goes into a zip code, this predicts housing prices go up 0.5 percent in a year," said Michael Luca, economics professor at Harvard Business School and co-author of the study.

The study also found the "Starbucks effect" on home prices increases the closer a property is located to the chain. Home prices

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go up even more when there are businesses nearby with a lot of reviews. For every ten extra reviews a business received on Yelp, home prices in that ZIP code rose by 1.4 percent.

While a half percent bump in home prices might seem insignificant, it adds up when considering the already stratospheric real estate prices in cities like New York, N.Y., Los Angeles, Calif., and San Francisco, Calif. However, Starbucks itself might not be the reason for the home price increases. Instead researchers believe the coffee shop location scouts are simply better at identifying gentrifying neighborhoods than average homebuyers.

## Study Reveals Wildfires Don't Hurt Hot Real Estate Markets

More people than ever want to live in wildfire zones, despite the risk of property damage that wildfires pose. With wildfire zones located just outside some of the country's most populated metro areas, a new study explores how wildfires impact home prices.

The study, led by researchers at the University of Nevada, Las Vegas, found that wildfires only affect real estate prices immediately after a disaster. In addition, home prices in wildfire disaster areas generally recover to their pre-fire levels within one to two years.

The study also found another troubling trend: not only do homeowners want to live in fire-prone areas, developers continue to meet the demand for new construction in these areas.

Homebuyers' awareness of fire risk did not have any impact on their willingness to invest in properties that are at risk of wildfire. Even in areas with burn scars, home values declined after a fire and took more time to recover but prices still returned to pre-fire levels within one to two years.

"We have so many homeowners living in fire-prone areas that we have to come to terms with that. How do we protect those people?" said research economist Shawn McCoy, who led the study.

## Machine Learning Is Disrupting the Real Estate Market

A group of companies are looking to leverage big data and machine learning to disrupt the process of buying and selling real estate. One company using big data to stream real estate transactions is Landis. The company has developed a platform that matches institutional buyers (primarily in New York City, N.Y.) with residential property owners (primarily in the Midwest).

Cyril Berdugo, a Landis' co-founder, was previously head of acquisitions for Crown Acquisitions, a large institutional real estate investor in New York. Landis utilizes machine learning to analyze property data in order to determine which owners might be flippers, which are typical owners, and who might be long-term buyers.

"We can spot from the data patterns when sellers might be selling property, when flippers might be selling property and we can actually pre-empt them doing that," Berdugo tells Datanami. "We can see it far enough in advance that we can give them a call and say, hey we think you might be selling those properties two months from now."

Landis' machine learning algorithms can automatically identify the features that institutional buyers prefer the most on the buying side of the real estate transactions. The company charges a 2.5 percent commission to sellers and a 1.5 commission to buyers. The outcome is that it cuts the costs of completing a real estate transaction by eliminating the need for agents, while speeding up the transaction.

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# How Much Do 'For Sale By Owner' Homesellers Really Get for Their Properties?


FSBO, which stands for "For Sale By Owner," are home sellers who sell their homes directly to buyers without using real estate agents for the transaction. These sellers became known as FSBOs from placing signs in their front yards that say "For Sale By Owner."

Realtors have always argued that FSBOs are making a mistake by selling on their own and choosing to not use a real estate agent. However, is it really true that sellers are actually getting less? Here is the truth about home sale prices when sold FSBO compared to a real estate agent.

## Take a Look at This Tweet on FSBO Sales

Is this recent tweet from the National Association of Realtors actually believable?

Selling Your Home Solo to Save Money? You'll Actually Make Less Than You Think (from @NAR_Research's Economists' Outlook blog): https://t.co/hWHUfPnf9I pic.twitter.com/kid0OCz8RH — REALTORS® (@nardotrealtor) July 15, 2018

Most every real estate agent believes FSBO homes sell for less than fair market value. They also often have an anecdotal story to go along with this assumption. It is also in the real estate agent's best interest to share this idea, but is this really the truth of FSBO sales or the home prices that FSBOs are able to achieve for their properties?

## FSBOs Sell Less Expensive Homes

The trick to this is that homeowners who sell their homes on their own often sell for less money because they sell less expensive homes. Homeowners who own mobile homes, manufactured homes, condos, and single-family homes in rural areas are the most likely to decide to sell their properties themselves.

When homeowners sell their less expensive properties for about the same amount as it costs to purchase a used car, they are expected to sell it in a similar way. This usually means there is no broker and the buyer and the seller will interact directly. Mobile and manufactured homes are six times more common among FSBO home sales than agent-assisted home sales.

## Academic Research Reveals FSBO vs non-FSBO Home Sale Prices

An academic study looked at single family homes sold in Madison, Wis. and accounted for the differences in the location, square footage and other home features. The researchers compared FSBO and non-FSBO home sale prices of similar homes in similar neighborhoods. They had roughly 15,000 home sales in their multi-year dataset. The Wisconsin study revealed that there was a zero percent price difference between homes sold FSBO and homes sold with the help of real estate agents.

## Real Estate Agents Must Lead With Value

Overall, the majority of people are better off using an agent to sell their home, but real estate agents must be able to convince homesellers of their advantages. This should be done without the scare tactic that FSBOs will miss out on price action, suggested the authors of the study.

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