The politics of Zestimate:
Merging technology and real estate industries

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Abstract

This update centers the role of Zillow, an American real estate platform, and its home valuation tool, Zestimate, in the commodification of housing in the last decades. The massive amounts of data collected since 2006 has enabled Zillow to train its predictive algorithms that determine Zestimates and enter the real estate market as a house-flipper. Today, the company purchases homes in high-demand neighborhoods of 25 cities, carries out minor remodeling, and sells them within 90 days. In this update, I aim to illustrate the radical changes brought by the digitization of the housing marketplace and how they facilitate the transformation of homes into investment vehicles.

Keywords

Housing commodification, proptech, platforms, mapping, automaton

Zestimate is an estimate of a property's market value created by the American online real estate platform Zillow, 'using a proprietary formula including public and user-submitting data' (Zillow, n.d.). This home valuation model is based on comparable sales inside a given zip code, the date and the price of the last sale, property taxes paid, exceptions to the tax assessments, number of bedrooms and bathrooms, square footage of the building and the lot size. Extensive remodeling of the house and the landscape does not affect the Zestimate value since Zillow takes the datasets directly from municipal property tax records. However, if an owner renovates a home and adds a bedroom, and a tax assessor deems the upgrade increases the home's value, the Zestimate will likely go up.

With approximately 36 million visits a month, this popular real-estate market platform claims that the nationwide median error rate of the Zestimate is 1.9% for on-market homes

and higher for off-market – 6.9%. The level of accuracy depends on the number of comparable sales in the vicinity of the property, making it more reliable for heated real estate markets in large coastal cities. To capture minor fluctuations of such markets and increase accuracy, in 2019 Zillow introduced a new neural-network-based model for analyzing enormous datasets that now include factors like road noise and commute times. Neural networks are one of the widely-used approaches in machine learning for recognizing patterns and interpreting data through labeling.

The company keeps the information about the types and origins of its datasets purposefully underexposed (Fontinelle, 2021). The imagined objectivity of supervised machine learning seems to be convincing enough. The known sources include Multiple Listing Service (MLS) as part of the Zillow Partnership Platform (ZPP), Tax Assessor Data and data submitted by users via the platform itself. Even though Zillow does not use confidential information about homeowners from MLS, it deploys different types of private information collected from hundreds of millions of people to continuously refine and increase the precision of its predictions without any consent. Zillow is far from being the only platform that places data accumulation at the core of its business model. However, the data points that it uses relate directly to homeownership, a model that has long been the primary source of generational wealth transfer in the United States.

Zillow launched its beta service in February 2006 as a platform for agents and real estate providers to advertise their services. Zestimate was a feature available in the very first version of the platform. After opening up the database for homeowners' contributions and making the data on home valuations and property details available free of charge through its Application Programming Interface (API), on 18 December 2007, Zillow launched dynamic real estate search technology (Zillow, 2007). By visually communicating quantitative data overlaid on a city map, the company radically transformed the housing market in the United States. Search parameters and zoom functions helped users narrow down the range of available properties and allowed them to seamlessly navigate different neighborhoods and evaluate their real estate market performance. Digitally mediated geographic knowledge transformed how housing is sold and bought simultaneously as a home and as an investment piece.

Over the last ten years, Zillow has consistently acquired other online real estate platforms and introduced numerous features ranging from custom loan quotes to expert advice and online tenant applications and rental payments. Its expansion started to attract more public attention in 2018 when Zillow became an algorithmically driven home flipper with its new feature – Zillow Offers. The marketplace platform began to buy homes in nine densely populated cities to hold them for 90 days or less before selling them (Casselman and Dougherty, 2019). There are other iBuying companies in a race to streamline home sales and purchases, but none of them holds the same amount of market data as Zillow, and, most importantly, none of them has an algorithmic value estimate tool trained with this data. The volume is one of the most essential elements of a successful platform.

The politics of platforms

It is crucial to understand what a platform is and how it is designed to extract data. A leading scholar of political implication of artificial intelligence, Kate Crawford, describes this thirst for data: 'Machine learning models require ongoing flows of data to become more accurate. But machines are asymptotic, never reaching full precision, which propels the justification for more extraction from as many people as possible to fuel the refineries of Artificial Intelligence' (2021, p.114). Almost any platform's expansion is led by the need for more data or more activities within it that can be turned into data. It is the organization of the data that makes the platform valuable for the users.

Benjamin Bratton, an architecture, media and geopolitics theorist who explores planetary-scale computation, defines a platform as 'a set of generic schematic arrangements that allows for the organization of the forms of conditional participation in the schema to operate with one another in ways that wouldn't have been possible without their participation within that platform' (Bratton, 2020). In other words, it is a system of scaffolding that, by classifying the information, presents it in a coherent and uniform way. In a similar way, Nick Srnicek, author of Platform Capitalism (2017), distinguishes three key characteristics of platforms. First and foremost, they act as mediators between different users that include not only customers and advertisers but also machines, all of them benefitting from the system of scaffolding in return for their data and participation. Secondly, platforms rely on 'network effects' with a tendency towards monopolization. Lastly, they need to remain attractive for users to sustain their interest. To remain attractive, a platform must increase its extraction of data and the accuracy of its algorithmic predictions.

The technological capabilities of Zillow are thus extended through supervised machine learning, shifting it from a marketplace to an active player of the real estate market. Like all other platforms, Zillow takes its labeled datasets of property metrics to train an algorithm that recognizes correlations between different types of data and informs another classifying algorithm that analyzes new inputs and makes a prediction based on the initial training dataset. The input in the case of the Zestimate is the house, its location, size, building year, number of bathrooms and other easily quantifiable characteristics. This rationalization of information means taking a complex world of housing supply and access with all its structural inequities and producing a model that holds enough power to extend further these inequities independent of the intention of its creators.

Deepening structural inequities: Zillow and the future of housing

A seemingly simple representation of the private property data on the map of the city has severe implications for the housing market. Sociologists Jane Addams and W.E.B. DuBois were among the first to extensively survey the population to produce evidence for the existence of structural inequalities in the form of maps and data analytics. Their study *The Philadelphia Negro* (1899) influenced numerous academics and practitioners, including Harland Bartholomew, St. Louis's first city planner. Bartholomew used citywide surveys of the race of the owners and tenants of the buildings not for housing advocacy but for drafting

the zoning ordinance that designated predominantly African American neighborhoods for undesirable uses (Williams, 2020, pp, 30- 33). Bartholomew's land-use methods were fundamental for the so-called redlining maps of the Home Owners' Loan Corporation (HOLC) that created a barrier to financing for the African American communities. An abstract representation of lived realities disguised as objective truth continuously influences design and planning of cities as the tools are getting increasingly more sophisticated. The gamified and user-friendly interface of Zillow further intensifies a perception of housing as real estate assets that are easily tradeable. If five years ago urban planner Peter Marcuse and sociologist David Madden used luxury condominium towers as an illustration of highly commodified and alienated housing in their book *In Defense of Housing*, today this transformation can be felt throughout the whole housing system (2016, p.36).

What does it all mean for the future of housing? How do Zillow and other proptech companies change the logic of the housing market? What are the tangible effects? First, by acquiring multiple parcels of land throughout the targeted geographic area, Zillow can influence the market and its prices turning it from a marketplace platform into a real estate speculator with an unmatchable knowledge of the housing landscape. The lack of algorithmic transparency makes it possible to manipulate Zestimate based on the company's purchasing strategy. Second, Zillow and its Consumer Housing Trends Report determine and suggest the type of renovations that will provide 'the best return on investment.' Garage door replacement, manufactured stone veneer and minor kitchen remodel will turn anyone's home into a better real estate asset based on the average taste of homebuyers (Zillow, 2021). Furthermore, Zillow suggests that painting a bathroom blue will give a 1.6% increase in offer price and under no circumstances can one paint the kitchen bright yellow (Zillow group, 2021). Third, transformations in information technology allowed institutional investors to enter the market of single-family homes – the fastest-growing segment of the rental market. By using an acquisition algorithm, companies like Invitation Homes can 'scale-up portfolios rapidly and deploy capital to the right submarkets and neighborhoods' (Fields, 2019, p.10). In addition, digital technologies for landlord-tenant relationships allow to automate all interactions and smoothly manage geographically dispersed properties. The fourth and final effect is the gamified logic and appearance of real estate platforms that, combined with algorithmic optimization of tastes and acquisitions, further alienates housing from being a universal necessity for life.

In the process of editing this article, Zillow unexpectedly announced the termination of its homebuying program after its most active week in early October 2021 (Stokel-Walker, 2021). Citing the labor shortage and market volatility as a reason for this decision, Zillow refuses to acknowledge that the algorithms behind the Zestimate might have been less accurate than expected. The platform is in the process of selling thousands of homes to *institutional investors*, not individual homeowners, while other iBuyers like Redfin and Opendoor are scaling up their buying programs. It poses the question of how one can understand and reimagine algorithmic decision-making systems that will continue to influence access to housing. Scholars like Catherine D'Ignazio, Lauren F. Klein, Sara Safransky and Erin McElroy forge a path forward by unveiling inequitable uses of data and

algorithms as well as deploying critical cartography and data visualization for the empowerment of vulnerable communities. This mode of practice is based on the notion that data are people, their lived realities, and possible futures.

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