

An aerial photograph of a suburban neighborhood. The image shows several houses with different roof colors (brown, grey, white), green lawns, and trees. A swimming pool is visible in one of the yards. The scene is captured from a high angle, showing the layout of the streets and the arrangement of the properties.

WHITE PAPER

AI in Action: The Journey of a Property Across the Policy Lifecycle

As insurtechs and new entrants create a state of heightened competition, Arturo can help you get the most out of technology. Read this white paper to see the journey of a real home across its policy lifecycle and how the power of AI can reimagine insurance.

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SECTION 01

The State of Property Insurance

There are four major pressures shaping the insurance industry today.

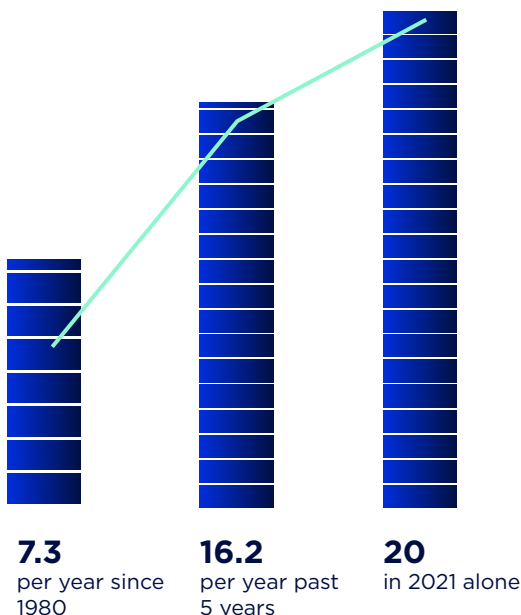
First, the world is getting riskier everyday.

Natural catastrophes and extreme weather are becoming more severe and frequent, all exacerbated by climate change.

The National Oceanic and Atmospheric Administration (NOAA) has been tracking the incidence of [billion dollar disasters](#) in the United States since 1980, adjusted for the consumer price index to 2021. The average number of billion dollar events since 1980 is 7.3 events per year. In contrast, the average of the past five years (from 2016 to 2020) is 16.2 events. And in 2021, there were 20 weather and climate disasters exceeding \$1 billion in losses.

That’s in the United States alone, the landmass of which makes up just 2% of the earth’s surface.

AVERAGE NUMBER OF BILLION DOLLAR EVENTS PER YEAR IN U.S.



For 2022 in particular, there is a 77% chance that La Niña conditions, or the cooling of waters in the equatorial Pacific, will persist through May. La Niña tends to create the right conditions for more severe convective storm activity through the Plains and southeast U.S. — and a more active Atlantic hurricane season.

Reflective of this, there are already early estimations for hurricane activity. [Colorado State University](#) and [Tropical Storm Risk](#) have both released pre-season forecasts for the Atlantic hurricane season to come. These forecasts show a slightly above average year, indicating an above average number of named storms, hurricanes and major hurricanes.

All of this is cause for concern for insurance carriers, who have regularly experienced the unpredictable impact of these events on their book of business — and who have witnessed horror stories of what happens when carriers don’t account for the increased risk.

In a worst case scenario, this can look like 2017’s Hurricane Irma and Hurricane Maria, which collectively battered Florida, Puerto Rico and the Greater and Lesser Antilles, inclusive of the U.S. Virgin Islands, in the span of two weeks. Together, the two hurricanes took over 3,000 lives. In the weeks and months after the hurricanes passed, Real Legacy Assurance, whose reinsurance policy couldn’t match the scope and scale of the events, was forced to liquidate, unable to pay out the claims from the storm.

And lastly, the industry is data-rich but intelligence-poor.

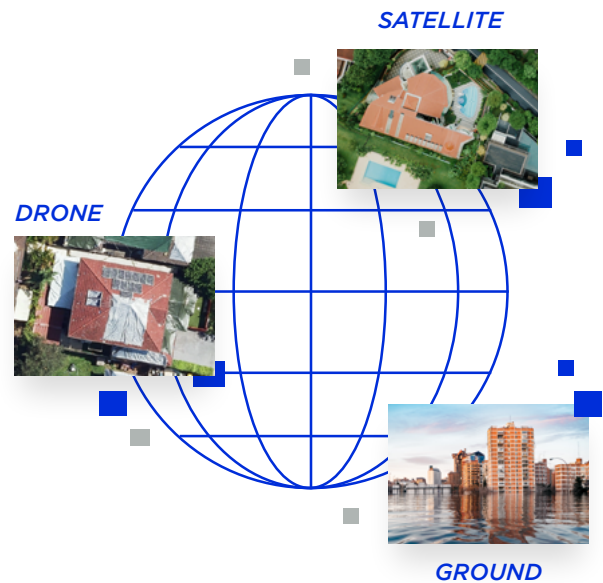
We have been mapping the world for centuries, but today there are more maps and photos than ever before, giving us the ability to see in almost real time how the earth is changing. With an abundance of providers offering satellite, drone, aerial, stratospheric balloon, ground-level and more types of imagery, it's easy to imagine how this could be a game-changer that addresses many of the above challenges.

With imagery, couldn't you see the vulnerabilities of a home, without an inspector? Couldn't you better understand the risk in advance of a catastrophic event? And couldn't you reduce friction with a faster underwriting process?

But **the abundance of imagery is a double-edged sword**, as there is often so much information and data that most find it difficult to derive real meaning. This is the big data problem at its core.

In many ways, these trends are forcing insurance carriers to reckon with the basics. How do you select the best risk? How do you reduce friction with potential customers? How do you know what your portfolio's exposure is to a natural catastrophe? How do you decide when to perform an inspection? And how vulnerable is that house, really?

Across the policy lifecycle, carriers everywhere are being called to reimagine insurance. But it can be difficult to conjure what that looks like — for a policyholder or for the carrier.



IN SHORT

There are four major pressures shaping the insurance industry today:

- 1. The world is getting riskier everyday*
- 2. Carriers depend on manual (and costly) processes*
- 3. Consumers just want it to be easy*
- 4. The industry is data-rich but intelligence-poor*



SECTION 02

Insurance Reimagined

Reimagining and executing a change from “business as usual” is no easy feat.

Many **insurance carriers are seeking to move towards a “predict-and-prevent” model**, where risk is understood precisely and completely up front — and any changes that occur to a property over time, like the addition of a pool or solar panels, or other items that result in underinsurance, are detected as they appear.

Much like in the tale of the three little pigs, where the brick house can withstand much greater adversity than the straw or stick house, the “predict-and-prevent” model seeks to help all policyholders get to their own “brick house” — resilient in the face of natural disasters — so no amount of huffing or puffing can blow the house down.

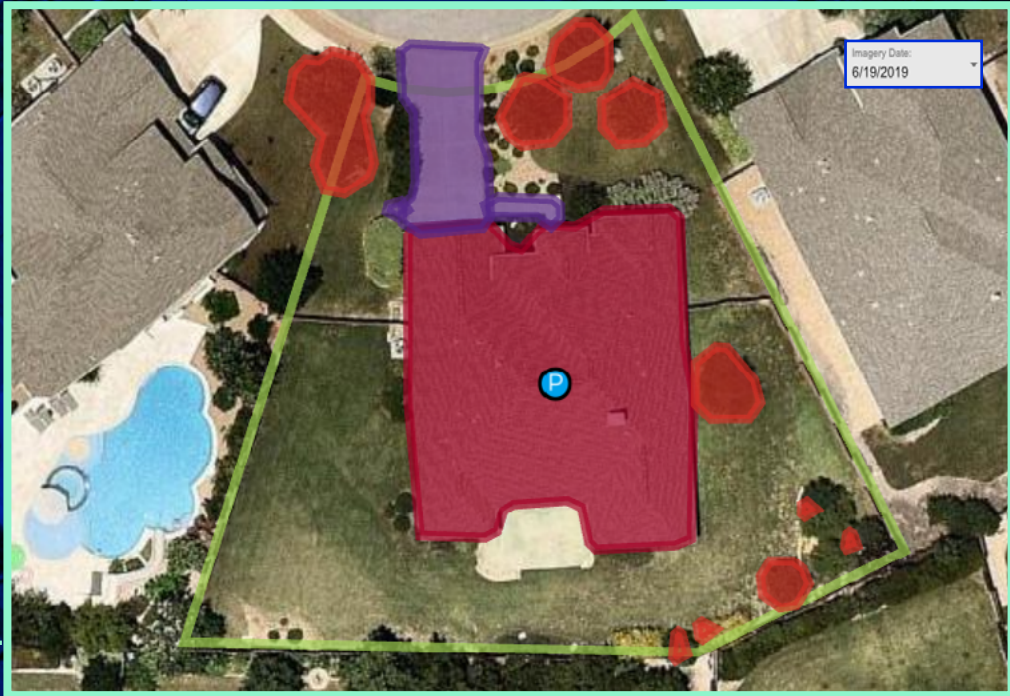
In this methodology, when a home’s risk is increased by innate vulnerability, perhaps by not fencing in a pool or too much roof-tree overhang, carriers can recommend mitigative action in exchange for reduced premiums. This proactive approach lets the insurer have the heart of a teacher, and it can create a more productive partnership between the insurer and the insured. In this model, nothing is missed, and this mitigates the cost of claims later on.

But how can this be achieved? Artificial intelligence, otherwise known as AI, can help make this transformation. In the insurance industry, the major application of AI is within the realm of computer vision which, as it sounds, is teaching a computer to see like a person.

AI, when intelligently developed and effectively deployed, can take on the manual task of looking through the imagery and deriving actionable knowledge. They can perform the pattern recognition tasks of determining, for instance, what is a hip or gable roof, what’s staining versus rusting, what type of shingle is there and how much tree overhang is present.

With companies like Arturo providing the technical development expertise, **you don’t need a computer science degree to leverage the power of AI for business decisions.**





SECTION 03

Mike's Story

Mike is a real person with a real home, and these are real insights about his home and the journey of his policy to show the power of AI in action in reimagining insurance.

In 2019, Mike bought a house in the Austin, Texas, area. This is his policy story.

JUNE 19, 2019

As Mike is closing on his house, he is exploring the options for homeowners' insurance policies across a multitude of carriers. **Arturo's AI analyzes its sources of imagery available for the property and produces intelligent insights in seconds.**

It identifies property characteristics needed to make an informed decision on how to underwrite his home. Within seconds, all of these attributes are populated within the carrier's policy admin system via API. With confidence levels delivered, the carrier can

decide for themselves what makes them comfortable and when they would want additional human verification.

With all of the information at the ready, the quote is generated easily. Getting a quote for home suddenly felt like the ease of getting a quote for auto. Arturo has seen **13% increases in quote completion and conversion** using this technology.

Mike is happy with his experience and the price, so the policy is bound.

13%

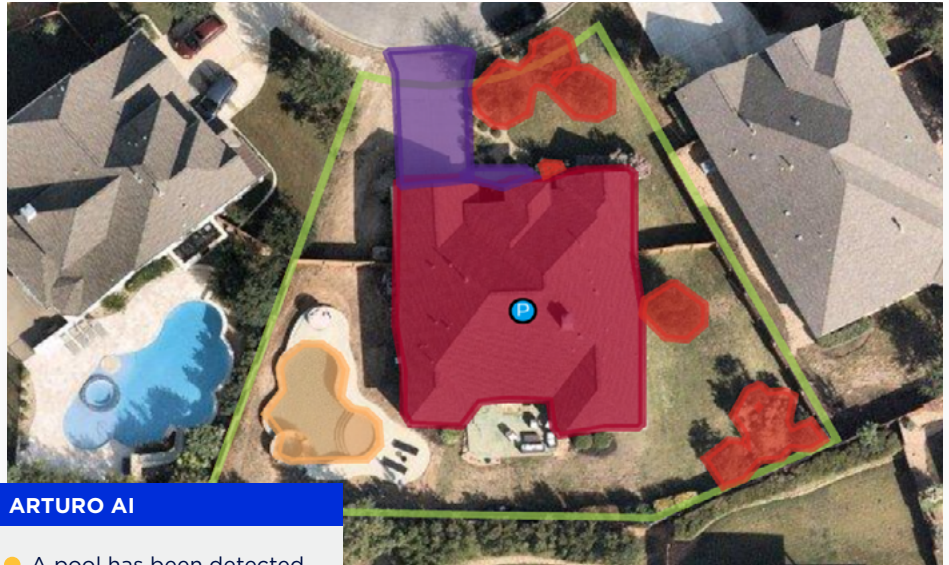
increase in quote completion and conversion, driving top line growth for the carrier

A screenshot of a property data form. At the top, there is a search bar with the text "ADDRESS 123 Leaf Rd, Austin, TX 75088". Below this, the form is organized into a grid of input fields. The fields and their values are: YEAR BUILT (2012), ROOF AGE (4), ROOF CONDITION (Good), ROOF AREA (4,214.33), ROOF MATERIAL (Asphalt Shing 98%), ROOF SHAPE COMPLEXITY (Complex 82%), DISTANCE TO NEIGHBOR (17.44), SOLAR PANEL COUNT (0), AC UNIT C (1), CHIMNEY COUNT (1), POOL COUNT (0), and TRAMPOLINE COUNT (0). A tooltip callout points to the "Complex 82%" value in the "ROOF SHAPE COMPLEXITY" field, containing the text "82% confident roof shape is complex".

YEAR BUILT	ROOF AGE	ROOF CONDITION
2012	4	Good
ROOF AREA	ROOF MATERIAL	ROOF SHAPE COMPLEXITY
4,214.33	Asphalt Shing 98%	Complex 82%
DISTANCE TO NEIGHBOR	SOLAR PANEL COUNT	AC UNIT C
17.44	0	1
CHIMNEY COUNT	POOL COUNT	TRAMPOLINE COUNT
1	0	0

NOV 1, 2019

Like most homeowners, Mike has big dreams. In just five months, a lot has changed. A **pool has been added, shrubbery has been removed** from around the driveway. He's even **purchased new patio furniture**. A house has begun its transformation into a home.

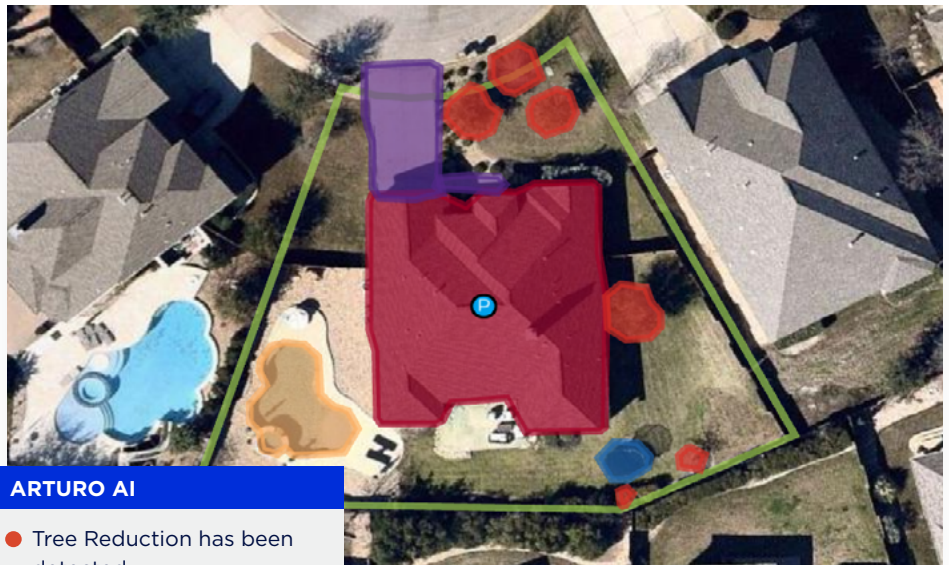


ARTURO AI

● A pool has been detected

FEB 27, 2020

In the months that pass, Mike has made more changes. He has **removed shrubbery and trees** near the fence line, and a **trampoline has been detected**.



ARTURO AI

● Tree Reduction has been detected

● Trampoline detected

MAY 18, 2020

Nearly one year has passed since Mike purchased his home. Since February, he **extended his patio through to his pool**, and now, a few months into the COVID-19 pandemic, Mike is now home more often. His **car has taken up residence in the driveway**.

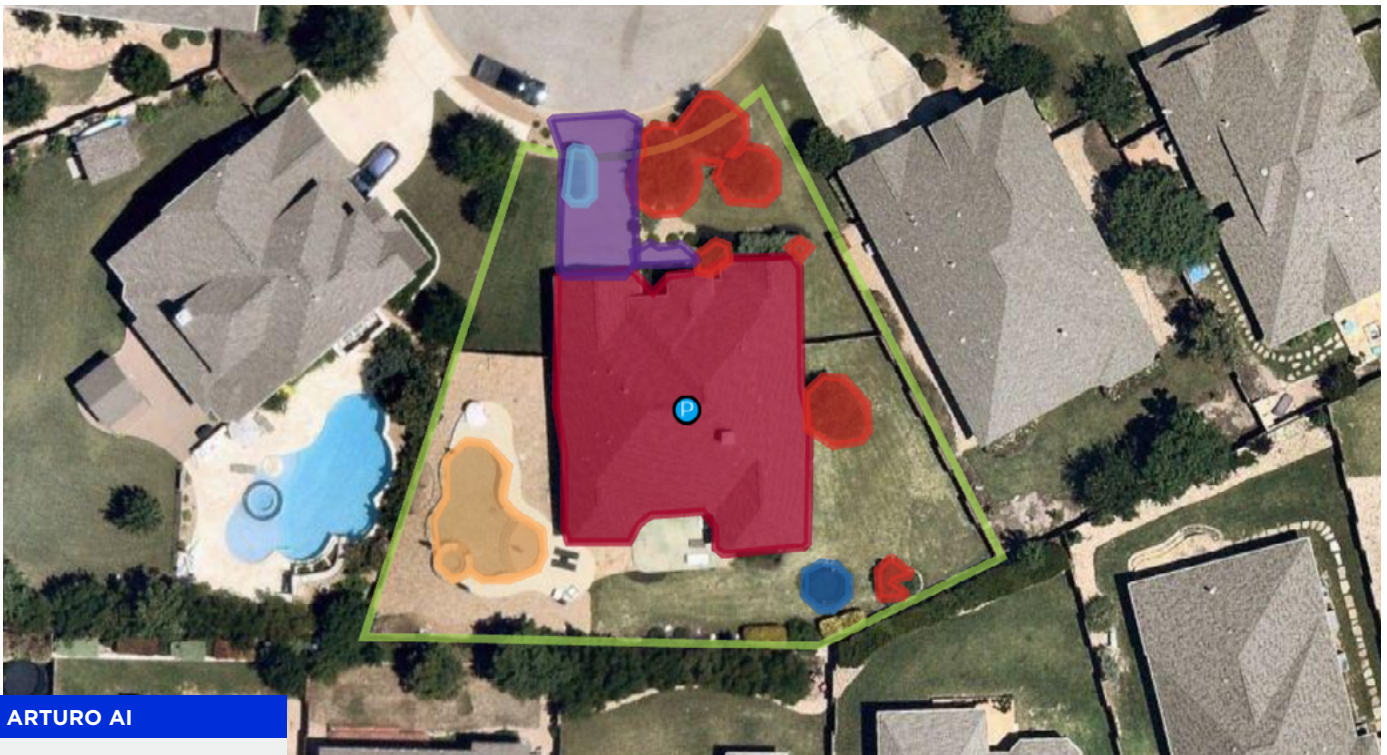
Since the beginning of his policy plenty has changed. It's nearly time for renewal, but because Mike's insurance company has been working with Arturo, they haven't missed a beat. **Mike's insurance company was able to keep a finger on the pulse of the policy — without ever having an onsite inspection.**

In advance of Mike's renewal, all of the information necessary was delivered ahead

of time. Within seconds, the attributes are funneled into the policy admin system via API, reflecting every change.

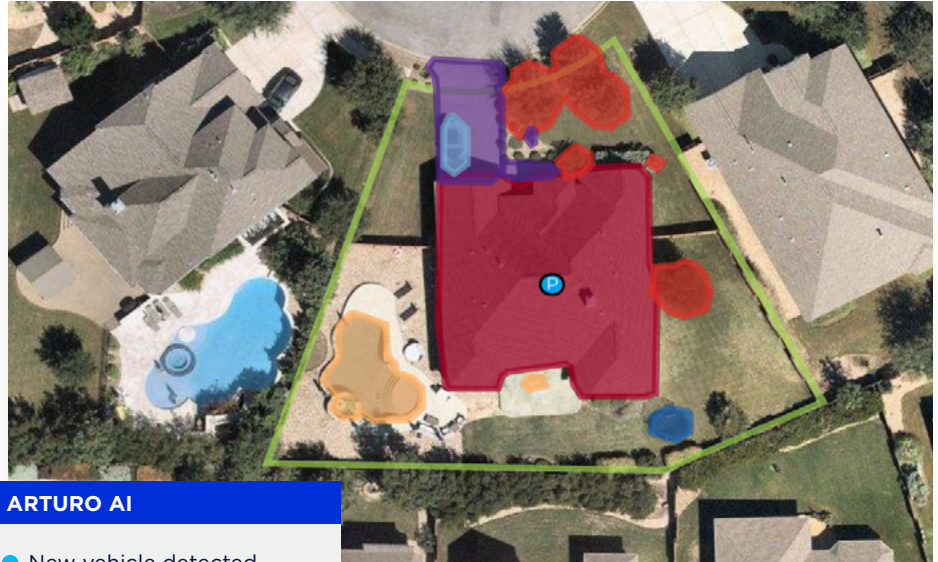
Arturo can detect changes in features that inform reconstruction cost, including pools, trampolines, and even costly and delicate solar panels. This way, the house remains adequately insured. In fact, Arturo has seen **20% improved accuracy and reduced premium leakage**. Mike's insurance company has understood his new level of risk to their portfolio, so they quote him a new price.

Mike is happy with his experience and the price, so the policy is bound.



SEPT 30, 2020

Mike's house isn't the only thing changing. By the time September rolls around, Mike has gotten a **new car**. Where there was once a black car parked in the driveway, there's now a white car, and all of the **patio furniture has vanished**.



ARTURO AI

● New vehicle detected

NOV 17, 2020

Things are quieter. Mike is always home now. In the time between September and November, nothing major has changed.

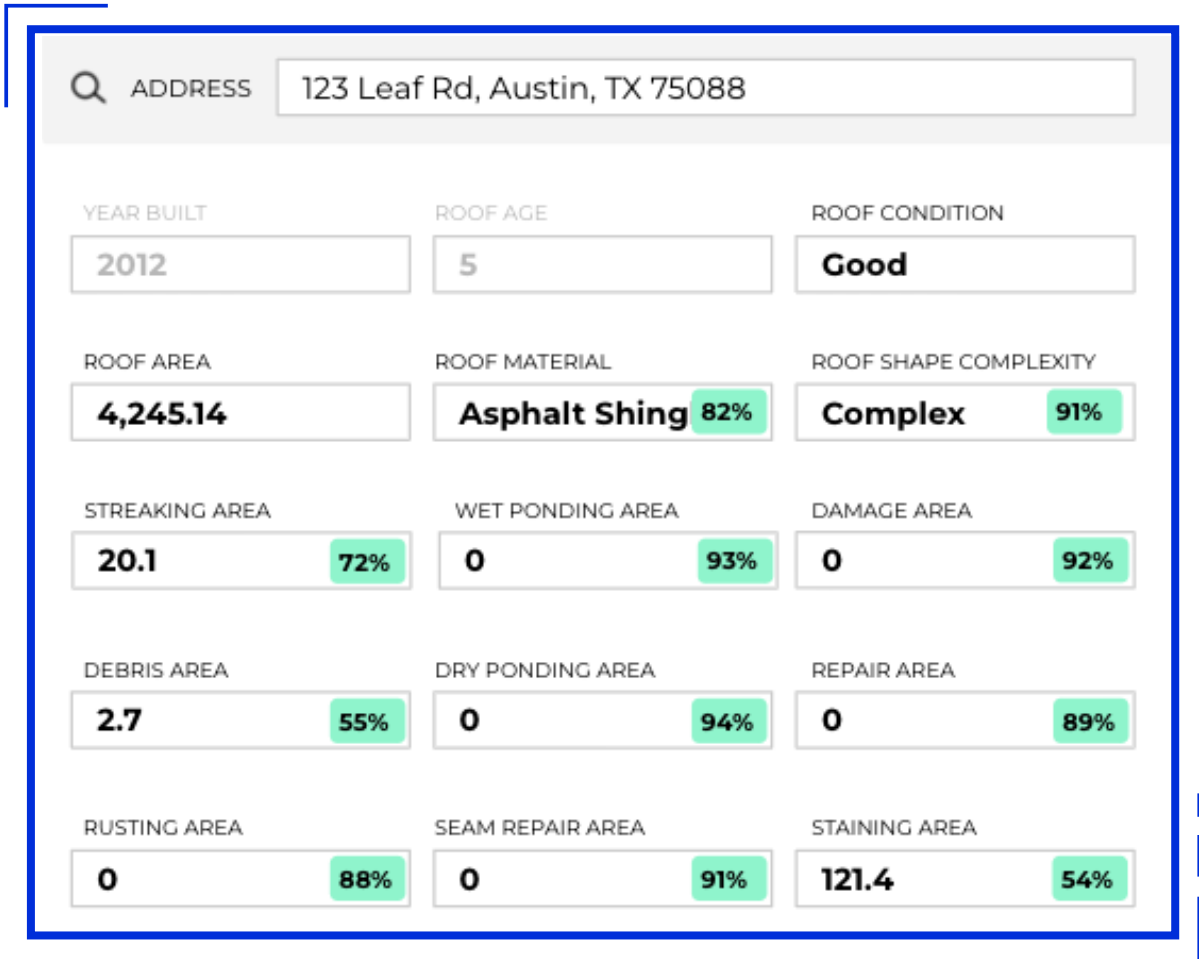


FEB 1, 2021

At this point, about a year has passed into the pandemic. In just a few short weeks, the notorious Texas Freeze will occur as a result of several winter storms, causing large-scale electricity failures and burst pipes across the state. In advance of potential severe weather, we can assess the vulnerability of Mike's home.

In particular, **Arturo can check in on Mike's roof condition.** Overall, he has a fairly good roof. With high confidence scores showing no damage, dry ponding, wet ponding, repair, rusting or seam repair, we can be fairly certain it's in good condition.

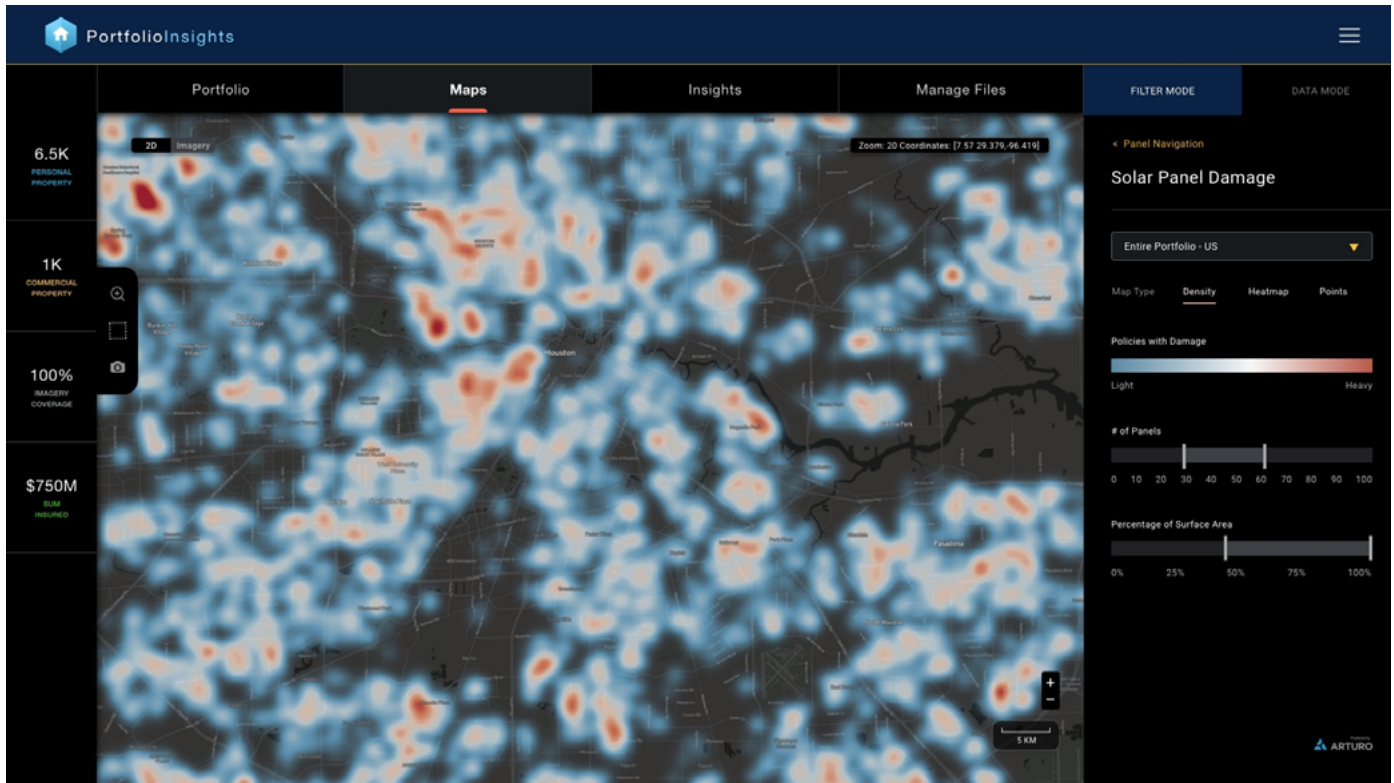
There's a decent chance there's some streaking or staining, but overall, he's not that vulnerable. These roof intelligence traits paint a clearer picture of the health of a roof— and for a fraction of the cost of an onsite inspector. Not only does this help to understand the risk a home faces and thus quote and price a policy more accurately, but it can even be used as an indicator of future claims, with the knowledge that a more damaged roof will fare worse in poor weather.



The Texas Freeze occurs two weeks later. In a catastrophic event, Mike's home isn't the only property that needs attention. Luckily, Arturo can see the bigger picture, too.

The insurance carrier's portfolio insights are at the ready. With a **footprint of the weather**

event overlaid on their entire book of business, it's easy to detect which policies are at risk. Mike's insurance company can see, at a glance, which policies have initiated a claim and which haven't, giving them the ability to reach out proactively and check in with the policyholder.



Mike was fortunate, so his home was left unscathed, but in the event of damage from, say, a hail storm, Arturo can detect those differences, too. Within hours of the event, by utilizing gray sky imagery, the insurance company can even see which homes newly have tarps and damage by comparing before-and-after images.

This can help triage claims, and this validation has helped save **30 minutes per property claim due** to minimized rework and improved accuracy. And, with the **average onsite adjuster costing between \$400 and \$600 per claim**, the ROI on using AI is staggering.



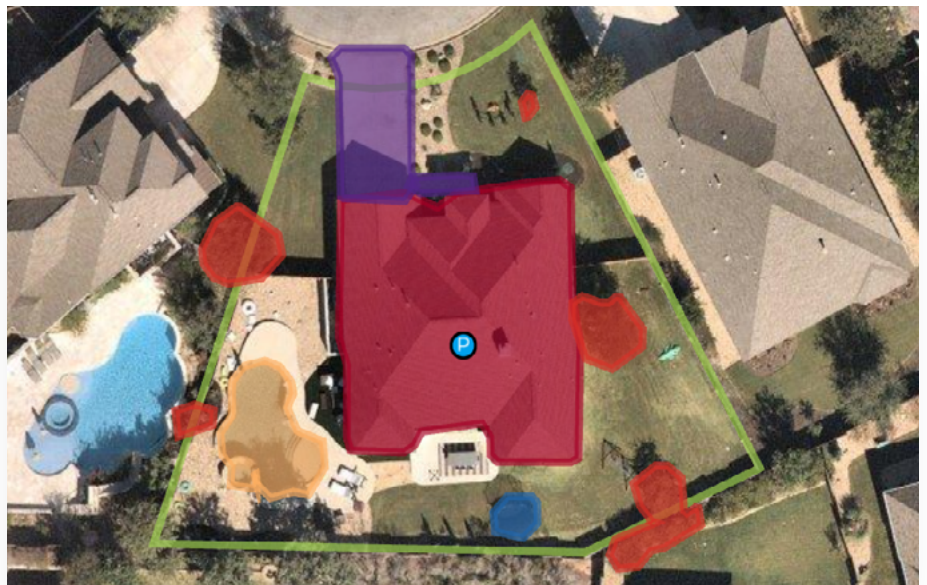
Saved per property claim due to minimized rework and improved accuracy

And, had Mike's home been damaged, the process of repair could be made much easier, too. A claims adjuster could easily take **remote measurements of the roof** as well, ensuring that any cost estimations are based on accurate information.



OCT 29, 2021

Seasons pass, and the house changes. By the time October rolls around, Mike's home has been **stripped of trees in the front**. Mike lives in wildfire-prone Austin, so this could make a difference in his wildfire risk.

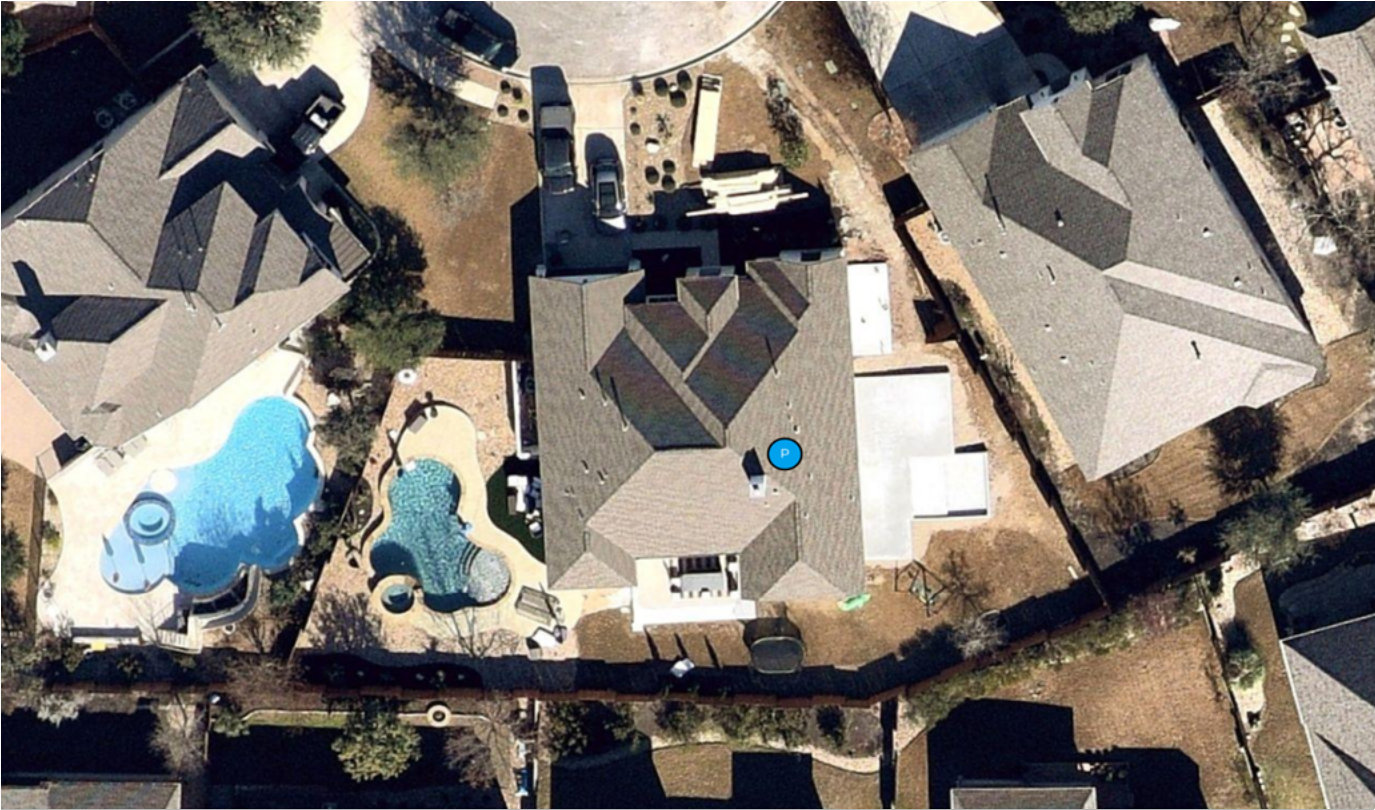


THE FUTURE

What does the future hold for Mike’s house? Today, Mike is gearing up for a major project: an extension on his house. The home will extend into the side yard. Construction has only just begun.

Austin continues to be wildfire-prone. Severe weather passes through the city from time to time.

How will you know if the roof has changed? When did damage appear? How do you ensure the next time renewals come around, the new risk is priced in accordingly? Arturo won’t miss it.





SECTION 04

Today's Technology for Tomorrow's Problems

There are four major pressures on today's P&C insurance industry, and AI can help combat them all at once.

It is impossible to prevent Mother Nature, but you can decide how prepared you are and how confident you are that you've selected the right risks. With climate change creating new uncertainty in the level of risk to a home or portfolio, **AI can help grapple with how vulnerable things really are and better inform underwriting and risk management choices.** By using AI to detect exposure long before a hurricane, wildfire or hailstorm, you can **recommend proactive measures to policyholders to reduce their premiums.**

As insurtechs and new entrants create a state of heightened competition, with Arturo you can get the most out of technology. You don't need a computer science degree to leverage the business value of AI; you just need the right partner to get the edge and move the needle towards making property insurance seamless, fast and accurate.

While the imagery explosion continues to ripple, with more and more providers taking photos of the earth and its built environment, you can take advantage of this wealth of information without having to struggle to find meaning from the noise. **AI can handle that task of parsing through millions of images to detect the insights you really need.**

And all of this can be done while **reducing time-consuming and costly manual processes**, allowing you to determine where exactly onsite inspections are truly necessary and deploying resources intelligently at scale.

With fewer onsite inspections, AI is cheaper; with increases in quote to bind ratios, it's faster; and with its scalability and automated accurate models, it's the perfect partner in human-machine teams, **reducing premium leakage and increasing accuracy by 20%**, thus giving you the ability to understand risk up front and price correctly for it.



increase in accuracy and reduced premium leakage by combining AI and human-machine teams.

This is how insurance can be reimagined—and how today's technology can solve tomorrow's problems.



arturo.ai

Decide with intelligence.