# 1993

## NAR President Bill Chee
## "The Lions Over The Hill"

"We must consider some form of public access. We must encourage members to focus on the value added nature of their business, rather than being the the provider of secret information."

Bill Chee, NAR President, 1993

MLS to create a business plan that supports the following vision:

The REALTOR® is the primary provider & distributor of all information needed by a consumer in a real estate transaction.

# Organized Real Estate & The Internet

REALTOR.COM

# The Lion Over The Hill

"Realtors currently sit at the middle of the transaction, I think in the future they will sit more on the outside offering specific services."

2006, Rich Barton, Co-founder of Zillow, Founder of Expedia

"People want Realtors. But is it rational to pay Realtors what they are paid?"

2006, Rich Barton, Co-founder of Zillow, Founder of Expedia

That was 2006. This is now.

"A machine cannot explain to a buyer what it will feel like to live in a neighborhood. Real estate will always be a people business."

November 2017, Spencer Rascoff, CEO of Zillow Group

"By far the greatest danger of artificial intelligence is that people conclude

too early that they understand it."

Eliezer Yudkowsky, artificial intelligence theorist

We Are Being Groomed
For A Powerful New Reality

People worry that computers will get too smart & take over the world, but the real problem is that they're too stupid & they've already taken over the world.

Pedro Domingos, "The Master Algorithm"

# WE ARE ALREADY BEING CONTROLLED
## [ ALGORITHMS ]

# GOOGLE & FACEBOOK

SHAPE HOW WE INTERACT WITH THE WORLD

# ALGORITHMIC TRADING

## LESS THAN 10% OF STOCK TRADING IS BY FUNDAMENTAL DISCRETIONARY TRADERS

# Algorithmic Trading % of market volume

# The Dawn Of News-based trading

# AUTOMATED VALUATIONS

## A Zestimate Is The result of an algorithm
### (we'll talk more about that later)

THE ROBOTS ARE COMING

HUMANS ARE REPLACEABLE

# Uber Will Test Air Taxis In LA by 2020

how AI will shape the way consumers search

# ROBOTS IN REAL ESTATE - TODD CARPENTER

- ‣ Big Data - There is an exponential increase in the amount of data that will be collected about real estate, and about the people buying and selling real estate.
- ‣ Smart Homes - Internet of things devices already allow for the collection of rich data about the home itself.
- ‣ Connected Communities - City-wide sensors will gather data about an area that was once the exclusive domain of a local expert.
- ‣ Open Data - National, state and local governments continue to push more data into the public domain.
- ‣ Blockchain Technology - This new way of managing data will bring even more certainty to property records
- ‣ Mobile Technology - The processors in today's mobile devices are quickly catching up to desktop class computers.
- ‣ Machine Learning - Artificial intelligence begins when a computer can process the unexpected.

**R** REALTOR®  NATIONAL ASSOCIATION *of* REALTORS®

## Robots in Real Estate

How artificial intelligence will shape the way consumers search for real estate
Todd Carpenter, National Association of REALTORS®

1

# THE REAL ESTATE TRANSACTION TIMELINE

# RESEARCH ▶

SEARCH ▶ FIND ▶ NEGOTIATE ▶ VALIDATE

▶ CLOSE

# RESEARCH
Before Consumers Buy or Sell
(meet The new data)

# BIG DATA
## Before Consumers Buy or Sell
## (meet The new data)

# City of Evanston™

Search

Home   Browse Data   User's Guide   Developers

Sign In

## Trees

The City of Evanston has inventoried and maintains over 34,000 trees located on City property and in the parkways.

More Views   Visualize   Export   Discuss   Embed   About

Old Orchard Rd
Memorial Park Cemetery
tfield Old Orchard
Golf Rd

Google | Satellite

hwestern
iversity

Block Museum of Art,
Northwestern University

**active:** 1
**address:** 3319
**condition:** Good
**dbh:** 17
**defect:** < 4 inches
**failure:** Moderate
**fromstr:** ALLEY
**gis_dbo_trees_area:** 1
**id:** 9889
**inspect:** N
**inspect_dt:** 2014-06-02T00:00:00.000Z
**inspect_tm:** 10:04:08
**inv_date:** 2014-06-02T00:00:00.000Z
**maintprim:** Tree Clean
**multistem:** N
**objectid:** 44046
**ohutil:** Yes
**onstr:** SIMPSON ST
**other:** No Additional Risk
**rating:** 6
**side:** Front
**site:** 2
**spp:** Gleditsia triacanthos inermis
**street:** SIMPSON ST

Evanston Golf Club

Skokie

Map data ©2017 Google   Terms of Use   Report a map error

Home Page   Browse Data   Privacy Policy   Contact Us

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# IOT
internet of Things

# ARRAY OF THINGS



PUBLIC LIGHT INDICATION

OPEN SOURCE DATABASE

3RD PARTY ALLERGY AND ASTHMA APP

AIR QUALITY SENSORS

LISTING DATA
- VS -
DATA ABOUT
LISTINGS

# ARE WE GATEKEEPERS?

Listing Data

Sensors

Public Data

User Generated

# REDEFINE "ROBOT"

## THE MOST POWERFUL BOTS WILL HAVE NO PHYSICAL FORM

# Let's Define Some Terms

# ARTIFICIAL INTELLIGENCE
## HUMAN INTELLIGENCE EXHIBITED BY MACHINES

# ARTIFICIAL INTELLIGENCE

➤ We have had "Narrow A.I." capabilities for some time, with very little true movement in the space, until 2012. We'll get to that in a minute.

➤ What we can do today generally falls into the concept of "Narrow A.I." Technologies that are able to perform specific tasks as well as, or better than, we humans can.

➤ Examples of Narrow A.I. are things such as a Chess game.  Face recognition on Facebook is also Narrow A.I., but it requires the next definition - Machine Learning.

# MACHINE LEARNING
## AN APPROACH TO ACHIEVE ARTIFICIAL INTELLIGENCE

# MACHINE LEARNING

➤ Machine Learning at its most basic is the practice of using algorithms to parse data, learn from it, & then make a determination or prediction about something.

➤ So rather than hand-coding software with a specific set of instructions to accomplish a task, the machine is "trained" using large amounts of data and algorithms that give it the ability to learn how to perform the task.

➤ Your spam filter is a form of Machine Learning. Computer vision, recognizing a STOP sign or your face on Facebook, is a form of Machine Learning.

# DEEP LEARNING
## A TECHNIQUE FOR IMPLEMENTING MACHINE LEARNING

# DEEP LEARNING

➤ Picking images of cats from 10 million YouTube videos was one of the first breakthroughs by Andrew Ng in 2012.

➤ Deep Learning involves neural networks, which have been around since the earliest days of AI, but had produced very little in the way of "intelligence." The problem was even the most basic neural networks were very computationally intensive, it just wasn't a practical approach... until GPU's.

➤ Google's AlphaGo learned the game, and trained for its Go match — it tuned its neural network — by playing against itself over and over and over.

The New Google Translate

A Quick Story

BombBomb™

# Conversica

# Amelia

RESEARCH ▶ SEARCH ▶ FIND ▶ NEGOTIATE ▶ VALIDATE ▶ CLOSE

Homebuyers & Sellers
Visit the internet
to answer 4 questions

What Is this home worth?
What homes are for sale?
What's the market like?
Can I trust this agent?

WHAT IS THIS HOME WORTH?

# AUTOMATED VALUATIONS

These are only going to get better.

# IMPROVING THE ZESTIMATE $1 MILLION AT A TIME.

‣ Qualifying: May 24, 2017 - Jan 17, 2018 Those whose algorithm reduces the difference between the Zestimate and the actual sales prices the most will move on to the finals.

‣ Finals: Feb. 1, 2018 - Jan 15, 2019 100 teams will compete in the final round for the $1 million grand prize. The winning team must build an algorithm to predict the actual sales price of homes, using innovative data sources to engineer new features that will give the model an edge over other participants.

**ZILLOW PRIZE**
Innovation Comes Home

## What is Zillow Prize?

Announcing Zillow Prize, a contest designed to inspire the brightest scientific minds to compete to improve the Zestimate® home valuation algorithm.

Data scientists everywhere have a unique opportunity to work on the algorithm that changed the world of real estate – and win $1 million for improving it.

# COMPUTER VISION

# Photos Are Rich With Data

# Photos Are Rich With Data

# Photos Are Rich With Data

# What if photos could provide answers to these types of questions:

What is the exact size of every room?
What direction is the family room facing?
What plants are in the front yard?
What's the architectural style of the house?
When will I need to repair the roof?
What are the countertops made of?
How green is the neighborhood?
How much snow will I have to shovel in my driveway?

some questions posed by stefan swanepoel & andrew flachner

WHAT IF
THE NEXT KILLER APP
IS NOT AN APP?

# Killer Hardware

# FAST Phones

# FAST Phones



**Performance (Geekbench 4)**

Tests performance using the Geekbench 4 synthetic benchmark. Larger is better.

| Device | Score |
|---|---|
| Apple iPhone 8 Plus | 10,472 |
| Apple iPhone 8 | 10,170 |
| Samsung Galaxy Note 8 | 6,564 |
| OnePlus 5 | 6,542 |
| Samsung Galaxy S8 | 6,295 |
| MacBook Pro 13-inch (Core i5) | 9,213 |
| Dell XPS 13 | 7,159 |

tom's guide

# What siri does today

# Siri's Future

# siri knows where you go

siri knows where you go

siri knows your schedule

# siri knows what your read

# siri will see your apps

Siri is on your mac as well...

# and on your wrist...

and in your car…

# and in your home...

# siri is everywhere

# siri is everywhere

So I had to ask...

Siri's Future.

# Siri is not a site

# siri will be an unrelenting robot...

# that assimilates data...

# And learns...



GREETINGS PROFESSOR FALKEN

HELLO

A STRANGE GAME.
THE ONLY WINNING MOVE IS
NOT TO PLAY.

HOW ABOUT A NICE GAME OF CHESS?

# And learns...

# And doesn't care about ads.

RESEARCH ▶ SEARCH ▶ FIND ▶

NEGOTIATE ▶ VALIDATE ▶ CLOSE

0:00 / 0:54

Press esc to exit full screen

0:00 / 2:19

It's been more than a year since the first self-driving truck made its first delivery.

0:00 / 3:29

"I'll have my people talk to your people"

# IMRE.CA - "I'LL HAVE MY PEOPLE TALK TO YOUR PEOPLE"

➤ Let's play a little bit.

➤ Let's pretend I'm a REALTOR® and you're a consumer looking at my listing on 87th Place in Scottsdale.

➤ Request more information by texting 480.424.5150 right now.

➤ Let's see what happens. :)



**BIRTH CERTIFICATE**
This certifies that

**HECTOR**

REALTOR A.I. ASSISTANT
AT 480-424-5150

was born to Jeff Turner

This concept Is becoming Harder to maintain:

The REALTOR® is the primary provider and distributor of all information needed by a consumer in a real estate transaction.

The new paradigm is more likely:

The REALTOR® is the ~~primary provider and distributor~~ trusted council ~~of~~ for all information needed by a consumer in a real estate transaction.

RESEARCH ▶ SEARCH ▶ FIND ▶

NEGOTIATE ▶ VALIDATE ▶

CLOSE

Bob: i can i i everything else . . . . . . . . . . . . . .

Alice: balls have zero to me to me to me to me to me to me to me to me to

Bob: you i everything else . . . . . . . . . . . . .

Alice: balls have a ball to me to me to me to me to me to me to me

Bob: i i can i i i everything else . . . . . . . . . . . . .

Alice: balls have a ball to me to me to me to me to me to me to me

Bob: i . . . . . . . . . . . . . . . . . . .

Alice: balls have zero to me to me to me to me to me to me to me to me to

Bob: you i i i i i everything else . . . . . . . . . . . . .

Alice: balls have 0 to me to me to me to me to me to me to me to me to

Bob: you i i i everything else . . . . . . . . . . . . .

Alice: balls have zero to me to me to me to me to me to me to me to me to

RESEARCH ▶ SEARCH ▶ FIND ▶

NEGOTIATE ▶ VALIDATE ▶

CLOSE

"The inability to reliably appraise a property without boots on the ground has been sand in the gears of the real estate engine, ultimately hindering liquidity & creating market inefficiencies."

House Canary, Future Of Appraisal

"Soon, a real estate investor will be able to look up the vitals of a property as easily as they can look up information about a publicly traded stock."

House Canary, Future Of Appraisal

"Forward-thinking appraisers will need to adapt to a market that requires their expertise in different forms, but they shouldn't brace for a market that doesn't require their expertise at all."

House Canary, Future Of Appraisal

# The AVM Model

House 1    House 2    House 3    House 4

How much is house 4 worth?

# The AVM Model

House 1   House 2   House 3   House 4

None of these houses are the same

How much is house 4 worth?

# The AVM Model

House 1    House 2    House 3    House 4

None of these houses are the same
None Of These Houses Sold Today

How much is house 4 worth?

# Variables

| House 1 | House 2 | House 3 | House 4 |
|---------|---------|---------|---------|

Location
Square feet
Bedrooms
Bathrooms
Lot size
Parking
Date sold
Market activity
Proximity
Historical sales
Tax records
————————-
Adjusted Value

Location
Square feet
Bedrooms
Bathrooms
Lot size
Parking
Date sold
Market activity
Proximity
Historical sales
Tax records
————————-
Adjusted Value

Location
Square feet
Bedrooms
Bathrooms
Lot size
Parking
Date sold
Market activity
Proximity
Historical sales
Tax records
————————-
Adjusted Value

How much is house 4 worth?

# Variables

| House 1 | House 2 | House 3 | Adjusted Value | House 4 |
|---------|---------|---------|----------------|---------|

**House 1**

Location
Square feet
Bedrooms
Bathrooms
Lot size
Parking
Date sold
Market activity
Proximity
Historical sales
Tax records
————-
Adjusted Value

**House 2**

Location
Square feet
Bedrooms
Bathrooms
Lot size
Parking
Date sold
Market activity
Proximity
Historical sales
Tax records
————-
Adjusted Value

**House 3**

Location
Square feet
Bedrooms
Bathrooms
Lot size
Parking
Date sold
Market activity
Proximity
Historical sales
Tax records
————-
Adjusted Value

**Adjusted Value**

Location
Square feet
Bedrooms
Bathrooms
Lot size
Parking
Date sold
Market activity
Proximity
Historical sales
Tax records
————-

**House 4**

How much is house 4 worth?

# Variables

| House | House | House | House | House | House |
|-------|-------|-------|-------|-------|-------|
| Location | Location | Location | Location | Location | Location |
| Square feet | Square feet | Square feet | Square feet | Square feet | Square feet |
| Bedrooms | Bedrooms | Bedrooms | Bedrooms | Bedrooms | Bedrooms |
| Bathrooms | Bathrooms | Bathrooms | Bathrooms | Bathrooms | Bathrooms |
| Lot size | Lot size | Lot size | Lot size | Lot size | Lot size |
| Parking | Parking | Parking | Parking | Parking | Parking |
| Date sold | Date sold | Date sold | Date sold | Date sold | Date sold |
| Market activity | Market activity | Market activity | Market activity | Market activity | Market activity |
| Proximity | Proximity | Proximity | Proximity | Proximity | Proximity |
| Historical sales | Historical sales | Historical sales | Historical sales | Historical sales | Historical sales |
| Tax records | Tax records | Tax records | Tax records | Tax records | Tax records |
| ———————- | ———————- | ———————- | ———————- | ———————- | ———————- |
| Adjusted Value | Adjusted Value | Adjusted Value | Adjusted Value | Adjusted Value | Adjusted Value |

| House | House | House | House |
|-------|-------|-------|-------|
| Location | Location | Location | Location |
| Square feet | Square feet | Square feet | Square feet |
| Bedrooms | Bedrooms | Bedrooms | Bedrooms |
| Bathrooms | Bathrooms | Bathrooms | Bathrooms |
| Lot size | Lot size | Lot size | Lot size |
| Parking | Parking | Parking | Parking |
| Date sold | Date sold | Date sold | Date sold |
| Market activity | Market activity | Market activity | Market activity |
| Proximity | Proximity | Proximity | Proximity |
| Historical sales | Historical sales | Historical sales | Historical sales |
| Tax records | Tax records | Tax records | Tax records |
| ———————- | ———————- | ———————- | ———————- |
| Adjusted Value | Adjusted Value | Adjusted Value | Adjusted Value |

## House 4

## How much is house 4 worth?

# Testing against historical data

| | |
|---|---|
| Algorithm one | $475,000 |
| Algorithm two | $492,000 |
| Algorithm three | $501,000 |
| Actual sold price | $489,000 |

# Testing against historical data

| | |
|---|---|
| Algorithm one | $475,000 |
| Algorithm two | $492,000 |
| Algorithm three | $501,000 |
| Actual sold price | $489,000 |

# Testing against Multiple Properties

| | |
|---|---|
| Algorithm one | $475,000 |
| Algorithm two | $492,000 |
| Algorithm three | $501,000 |
| Actual sold price | $489,000 |

| | |
|---|---|
| Algorithm one | $365,000 |
| Algorithm two | $302,000 |
| Algorithm three | $289,000 |
| Actual sold price | $310,000 |

| | |
|---|---|
| Algorithm one | $190,000 |
| Algorithm two | $205,000 |
| Algorithm three | $225,000 |
| Actual sold price | $195000 |

| | |
|---|---|
| Algorithm one | $501,000 |
| Algorithm two | $525,000 |
| Algorithm three | $450,000 |
| Actual sold price | $519,000 |

| | |
|---|---|
| Algorithm one | $585,000 |
| Algorithm two | $650,000 |
| Algorithm three | $501,000 |
| Actual sold price | $593,000 |

| | |
|---|---|
| Algorithm one | $164,000 |
| Algorithm two | $175,000 |
| Algorithm three | $190,000 |
| Actual sold price | $181,000 |

| | |
|---|---|
| Algorithm one | $255,000 |
| Algorithm two | $279,000 |
| Algorithm three | $301,000 |
| Actual sold price | $289,000 |

| | |
|---|---|
| Algorithm one | $850,000 |
| Algorithm two | $864,000 |
| Algorithm three | $801,000 |
| Actual sold price | $869,000 |

# Testing against Multiple Properties

| | |
|---|---|
| Algorithm one | $475,000 |
| Algorithm two | $492,000 |
| Algorithm three | $501,000 |
| Actual sold price | $489,000 |

| | |
|---|---|
| Algorithm one | $365,000 |
| Algorithm two | $302,000 |
| Algorithm three | $289,000 |
| Actual sold price | $310,000 |

| | |
|---|---|
| Algorithm one | $190,000 |
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| | |
|---|---|
| Algorithm one | $501,000 |
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| Actual sold price | $519,000 |

| | |
|---|---|
| Algorithm one | $585,000 |
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| Algorithm three | $501,000 |
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| | |
|---|---|
| Algorithm one | $164,000 |
| Algorithm two | $175,000 |
| Algorithm three | $190,000 |
| Actual sold price | $181,000 |

| | |
|---|---|
| Algorithm one | $255,000 |
| Algorithm two | $279,000 |
| Algorithm three | $301,000 |
| Actual sold price | $289,000 |

| | |
|---|---|
| Algorithm one | $850,000 |
| Algorithm two | $864,000 |
| Algorithm three | $801,000 |
| Actual sold price | $869,000 |

Algorithm 2 Wins

# Fine Tuning the Model

~~Algorithm 1~~

Algorithm 2

~~Algorithm 3~~

# Fine Tuning the Model

Algorithm 1

Algorithm 2

Algorithm 3

→

Algorithm 2.1

Algorithm 2.2

Algorithm 2.3

# Machine Learning

Algorithm
1

Algorithm
2

Algorithm
3

→

Algorithm
2.1

Algorithm
2.2

Algorithm
2.3

→

Algorithm
2.3.1

Algorithm
2.3.2

Algorithm
2.3.3

# BLOCK CHAIN
## A NEW WAY OF MANAGING DATA

# BLOCK CHAIN

➤ "The blockchain is an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value." - Don & Alex Tapscott, Blockchain Revolution (2016)

➤ Blockchain is beginning to be adopted by mortgage, title, and local government verticals to handle issues related to chain of title, transactional data, and even commission compensation.

➤ Blockchain cannot:

➤ 1. Be controlled by any single entity.

➤ 2. Has no single point of failure.

# BLOCK CHAIN - MORE THAN A DAT...

➤ The most recognized blockchain system today is Bitcoin, a digital currency application released in 2009.

➤ The evolution of the technology for non-financial companies led to a new name. In 2014, the press started calling the updates "Blockchain 2.0". One of the important features of Blockchain 2.0 is the ability to support a "Smart Contract".



## A look at blockchain technology

**What is it?** The blockchain is a decentralized ledger of all transactions across a peer-to-peer network. Using this technology, participants can confirm transactions without the need for a central certifying authority. Potential applications include fund transfers, settling trades, voting, and many other uses.

**How it works:**

Someone requests a transaction.

The requested transaction is broadcast to a P2P network consisting of computers, known as nodes.

**Validation** The network of nodes validates the transaction and the user's status using known algorithms.

A verified transaction can involve cryptocurrency, contracts, records, or other information.

Once verified, the transaction is combined with other transactions to create a new block of data for the ledger.

The new block is then added to the existing blockchain, in a way that is permanent and unalterable.

The transaction is complete.

**Benefits**
- Increased transparency
- Accurate tracking
- Permanent ledger
- Cost reduction

**Unknowns**
- Complex technology
- Regulatory implications
- Implementation challenges
- Competing platforms

**Cryptocurrency** Cryptocurrency is a medium of exchange, created and stored electronically in the blockchain, using encryption techniques to control the creation of monetary units and to verify the transfer of funds. Bitcoin is the best known example.

Has no intrinsic value in that it is not redeemable for another commodity, such as gold.

Has no physical form and exists only in the network.

Its supply is not determined by a central bank and the network is completely decentralized.

**Potential applications**

**Automotive** Consumers could use the blockchain to manage fractional ownership in autonomous cars.

**Financial services** Faster, cheaper settlements could shave billions of dollars from transaction costs while improving transparency.

**Voting** Using a blockchain code, constituents could cast votes via smartphone, tablet or computer, resulting in immediately verifiable results.

**Healthcare** Patients' encrypted health information could be shared with multiple providers without the risk of privacy breaches.

# BLOCK CHAIN - MORE THAN A DAT

➤ The characteristics that differentiate blockchains from traditional database architectures are:

➤ Distributed Ledger – Information is not centralized

➤ Smart Contracts - Automated execution

➤ Immutable Information State – Changes are permanent

➤ Transparency – Information is visible to all users

➤ Blockchain in Real Estate Part 1 & Blockchain in Real Estate Part 2 (Mark Lesswing, CTO, National Association of REALTORS®)



A look at **blockchain technology**

**What is it?** The blockchain is a decentralized ledger of all transactions across a peer-to-peer network. Using this technology, participants can confirm transactions without the need for a central certifying authority. Potential applications include fund transfers, settling trades, voting, and many other uses.

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Someone requests a transaction.

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# Blockchains in Real Estate

## Mark Lesswing
### CTO, NAR

Blockchain in Real Estate Part 1 & Blockchain in Real Estate Part 2 (Mark Lesswing, CTO, National Association of REALTORS®)

# Blockchains Background

A method of managing data

Decentralized ledgers

Secure from tampering

Conceived in '08; Implemented in '09

# Bitcoin uses blockchain

# BUT

# Not all blockchains are digital currency

# Useful for asset and supply chain management

# Conceptual Model

**Think of a blockchain as a chain of events.**

# Blockchains Capture Origin

## Combining & Splitting Parcels

# Blockchains Automate Actions

# THE MORTGAGE LENDER Implode-O-Meter ™

Hedge Funds ImplodeNet — Home Builders Banks

IMPLODE FORUMS ™

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- Its Time To Say Sayonara To Federally Funded CRA Housing Agencies
- Is Flagstar Bank Playing Low-Income Borrowers For Chumps?
- NYCHA Hasn't Performed Lead Paint Inspections In Over A Year
- Wells Fargo Consumer Lending Chief Fired For Being A Big Mouth
- Operator Of Fraudulent Predatory Lending Scheme Found Guilty
- The Cattiness Of Wells Fargo Executives Rivals The Ladies From Dynasty

more ...

## Implosions

Bank $1B Louisiana bank failure is

## *We tallied 388 mortgage co. implosions from 2006.*

## Housing & Economic Crisis News Picks

**Bitcoin Futures Deliver Wild Ride as Debut Brings Rally, Halts** - [2017-12-11] - ``Futures on the world's most popular cryptocurrency surged as much as 26 percent in their debut session on Cboe Global Markets...

**The Retail Apocalypse Is Fueled by No-Name Clothes** - [2017-12-11] - ``This year Amazon will leapfrog T.J. Maxx owner TJX Cos. and Macy's Inc. to become the second-biggest seller of apparel and foo...

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Emiliano Ponzi

**WILLIAM D. COHAN**  |  **OCTOBER 2013 ISSUE**  |  BUSINESS

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Eighteen months ago, Blackstone created Invitation Homes to buy and then rent out single-family homes in 13 markets across the country, with a focus on places scarred heavily by the bust, such as Phoenix, Las Vegas, and Orlando. To date, Blackstone has purchased some 32,000 houses from banks, spending more than $5.5 billion in the process, plus another $500 million on renovations. Some 1,000 people work for Invitation Homes, and the venture, at the time of this writing, is continuing to invest at a clip of about $125 million a week."

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EMPATHY

YOU + TECH > TECH

In a world of increasing automation, people who can genuinely connect with others will be more valuable, not less.

Jeff Turner