

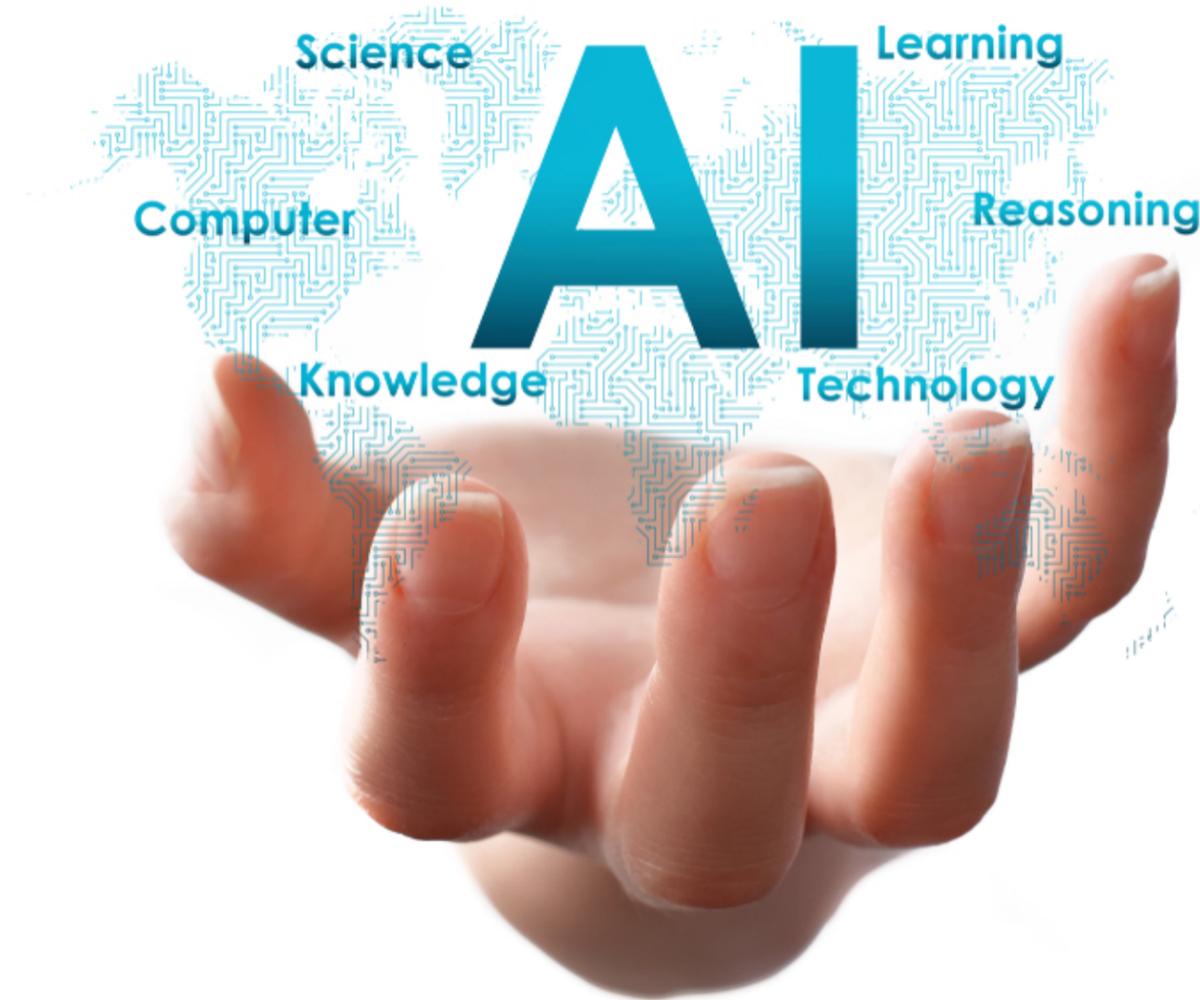
# The Power of Artificial Intelligence In Mortgage

Using a very broad definition, artificial intelligence replicates human reasoning through learning, problem-solving and pattern recognition. .

BY SOOFI SAFAVI

**T**hese days, it's hard to miss the buzz about artificial intelligence (AI) and its impact on industries such as health care, automotive, education, financial services and retail, to name just a few.

From the ability to diagnose diseases – to the development of driverless cars – the potential applications of AI are extraordinary. In our daily lives, we already are experiencing the use of AI when we communicate with customer-service chat bots, ask Apple's Siri for information, perform Google searches, or use navigation apps to help avoid traffic, as a few examples.



Despite all the recent discourse about AI, this technology is certainly not new. There are countless examples of AI use over the past several decades, including the reliance of commercial jet flights on AI to power autopilot, and internet bots that index web pages. But the more recent interest, innovation and investment in AI are due to a combination of factors – including greatly increased computational power, big data, greater infrastructure speed and scale, open source technologies and advancements in machine learning techniques.

And today, the mortgage industry is able to reap the benefits of this incredible technology. For example, HeavyWater, which was recently acquired by Black Knight, is a provider of AI and machine learning-based capabilities specific to the financial services industry. The company has already built a platform that completes business tasks using synthetic read-and-comprehend analysis and conclusion skills, and applied these capabilities to the loan origination process.

### **What is Machine Learning?**

The terms “machine learning” and “artificial intelligence” are often used interchangeably, however, there is a distinction between the two. Using a very broad definition, artificial

intelligence replicates human reasoning through learning, problem-solving and pattern recognition. Machine learning is a subset of AI and is a process by which AI deepens its knowledge through continually performing tasks and processing information.

Let’s consider a simple, industry-specific example. AI-powered machine learning enables technology to “remember” standardized forms. For example, it can review thousands of paystubs and determine exactly where the pertinent income data is located. When the system comes across a paystub that presents an anomaly, it will apply its previously gained understanding to infer the location of the income data needed. Once the technology receives feedback that its inference was correct, it incorporates that information into its knowledge base. The next time it comes across that type of paystub, the system will automatically know where to find the pertinent data.

Machine learning also leverages big data to gain insights. The more data that is collected and reviewed, the better machine learning solutions become at making predictions.

### **Applying AI and Machine Learning to Reduce Costs and Turn Times**

AI and machine learning already can make a difference

in two of the biggest challenges faced today by mortgage originators: costs and cycle times. With the ability to read, comprehend, and draw conclusions based on context, AI and machine learning can perform operational functions more efficiently and at scale.

In fact, machine learning can work on many of the labor-intensive, “stare and compare” tasks performed by humans – such as verifying income, assets and insurance coverage. Machine learning is used to perform these manual activities much faster and more accurately than humans – a task that takes employees hours to complete can be reduced to just seconds with machine learning.

By automating manual routines, machine learning not only expedites the origination process, but also increases volume. While humans can only work a certain number of hours before mistakes begin occurring, machine learning has no limits to the time or energy it can spend performing these tasks. By increasing loan processing volume and reducing mistakes, imagine how machine learning can drive down origination costs – and risk.

AI-powered systems enable processors and underwriters to dedicate more time to addressing exceptions and solving problems, which

will improve transaction turn times. Also, AI can help avoid last-minute delays by prompting a lender's staff to take early action when there is an issue, keeping the origination process moving forward. Additionally, by delegating work to AI-powered technology, a lender's staff can focus on delivering a more positive and personalized consumer experience.

As AI and machine learning are used to perform manual, repetitive tasks, allowing mortgage professionals to work on more value-added responsibilities, lenders can increase their focus on their company's growth strategies. As they scale and reduce the cost per loan by keeping staffing levels flat, lenders can invest more in product development, marketing, infrastructure, and other growth-oriented initiatives.

### **Additional Applications of AI**

AI can also leverage visual recognition to image and index a wide variety of documents that are typically reviewed by processors and underwriters, such as tax returns, W-2s, property titles and appraisals. A lender could even use AI and machine learning to better manage vendors. Based on past performance and cost, AI could provide recommendations on which vendors would be optimal for

each loan going through the origination process.

Voice-integrated AI brings further opportunities to create efficiencies. This technology could look at information under review, evaluate results and automatically employ interactive communication bots to advise employees of any issue that may need attention. Additionally, via a conversational interface, processors and underwriters could ask for information they need – just as we use virtual assistants like Apple Siri, Amazon Alexa or Microsoft Cortana to get answers. These capabilities certainly could help move a loan through the origination process faster.

### **Leveraging AI to Enhance Customer Service**

Of course, most of us have experienced first-hand how AI is applied in retail to deliver a more personalized consumer experience. For example, when we shop online, we receive targeted product recommendations the next time we visit that site; or receive faster service through chat bots.

To help personalize and enhance the borrower's experience, lenders can leverage voice capabilities. A mortgage virtual assistant that engages customers by answering questions, walking them through the application process and even offering advice could be employed using voice-integrated AI.

### **Impact on Jobs**

When the subject of AI in the workplace is discussed, it inevitably raises questions about its impact on jobs. Will jobs be lost as a result of these technological advancements?

There is no perfect answer to this question since the utilization of AI is different from company to company. But, it seems certain that future skill sets will be required to support this shifting technological paradigm. As it applies to the mortgage industry today, however, AI can enable professionals to spend less time on remedial work, becoming knowledge workers instead of task executors, and provide additional value to a company.

### **The Future Is Limitless**

AI and machine learning offer tremendous potential to advance the mortgage industry, and we are just beginning to experience the technology's capabilities. As AI-powered systems ingest more data and perform an increasing number of tasks through machine learning and other techniques, the possibilities are unlimited.

Imagine the power of AI as it learns to handle the entire point-of-sale process and speaks to an applicant directly through a mobile phone; or as it systematically searches a lender's portfolio for qualified prospects and

offers a customized home equity loan or line of credit, and so on. As we all know, the average cost to originate a mortgage loan is exceptionally high – today it is nearly \$8,500 according to the Mortgage Bankers Association’s Quarterly Mortgage Bankers Performance Report, and the typical time to close a loan is 41 days. Any opportunities to reduce costs and increase process efficiencies will add value to lenders and consumers.

What’s more, the transformative power of AI doesn’t stop in the originations space. Servicers will also be able to reap the benefits of this advanced technology. For example, the technology could learn how to detect risk and any compliance issues before they occur, enhance loss mitigation decisioning, provide voice integration capabilities to help staff work faster and smarter, and so on. What’s amazing is that these examples only scratch the surface.

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Of course, human interaction will always be needed to originate and service loans, as people will still decide how they want to leverage technology and determine the problems that must be solved. Humans must also still play an active role in loan decisioning, identifying which kind of data to consider and determining risk appetite. Furthermore, research indicates that despite all the advances in point-of-sale technology, consumers still

want the comfort of human interaction at some point in the process of purchasing what is their largest and most important investment.

AI and machine learning offer great promise and will likely usher in a new era of production excellence. Lenders that take advantage of this advanced technology will be choosing a bold new way to address origination costs, improve turn times and transform their origination processes to support a more successful future. ❖

**ABOUT THE AUTHOR**

Soofi Safavi is Managing Director of the Applied AI group of Black Knight, Inc., and is responsible for the suite of AI solutions, and integrating the computing capabilities to Black Knight software across the loan life cycle. With over 20 years of experience, he has deep expertise in IT strategy, architecture and machine learning.



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