Session 202 | Mr. Roboto Goes to Wall Street – The Use of Artificial Intelligence in Financial Services

Artificial intelligence (AI) is disrupting diverse industries, but financial services may stand to benefit the most. The use of alternative data helps banks and other credit providers tap into markets who traditionally lack credit scores. Accessing new layers of data sources aids hedge funds in their quest to chase alpha. Insurance companies are improving risk models on AI. From Fintech start-ups to established industry titans, financial services providers are re-engineering the customer experience using algorithms and machine learning.

After a brief survey of how our financial institutions are actively pursuing AI to further their business objectives, we will discuss regulatory concerns, as oftentimes there is little visibility into how AI and related technologies come to their conclusions in solving problems. This often leaves practitioners in the dark in terms of how to assess privacy and other legal and ethical problems.

We will also review the rapidly evolving regulatory landscape and discuss the use of AI by practitioners in helping them deal with compliance, fraud detection and anti-money laundering issues.

Moderator:
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Speakers:
Michele (Mitch) Gibbons, Thompson & Knight LLP
Albert Chang, Consumer Financial Protection Bureau
Mr. Roboto Goes to Wall Street

THE USE OF ARTIFICIAL INTELLIGENCE IN FINANCIAL SERVICES
Mr. Roboto
Wall Street
AI in Financial Services
What is AI?
History Of AI

1950: TURING TEST
Computer scientist Alan Turing proposes a test for machine intelligence. If a machine can trick humans into thinking it's human, then it has intelligence.

1955: A.I. YORK
Term “Artificial Intelligence” is coined by computer scientist John McCarthy to describe “the science and engineering of making intelligent machines.”

1961: UNIMATE
First industrial robot, Unimate, goes to work at GM helping humans on the assembly line.

1964: ELIZA
Pioneering chatbot developed by Joseph Weizenbaum at MIT holds conversations with humans.

1966: SPACEY
The first electronic persona from Stanford, Sherry, is a general-purpose mobile robot that reasons about its own actions.

1973: WINTER
Mary Elise starts and later ends leave AI out in the cold.

1997: DEEP BLUE
Deep Blue, a chess-playing computer from IBM defeats world chess champion Garry Kasparov.

1998: KASNET
Cynthia Breazeal at MIT introduces Kismet, an emotionally intelligent robot that mirrors and responds to people’s feelings.

1999: AIBO
Sony launches first consumer robot pet dog AIBO (AI robot) with skills and personality that develop over time.

2002: ROBOT
First mass-produced autonomous robotic vacuum cleaner from iRobot learns to navigate and clean homes.

2011: Siri
Apple integrates Siri, an intelligent virtual assistant with a voice from the iM’s winning interface into the iPhone 4S.

2014: Watson
IBM’s question answering computer Watson wins first place on popular $1M prime television quiz show Jeopardy!

2014: Eugene
Eugene Goostman, a chatbot passes the Turing Test with a third of judges believing Eugene is human.

2014: Alexa
Amazon launches Alexa, an intelligent virtual assistant with a voice interface that completes shopping tasks.

2016: Google
Microsoft’s chatbot Tay goes rogue on social media making inflammatory and offensive racist comments.

2017: AlphaGo
Google’s AI, AlphaGo, beats world champion Ke Jie in the complex board game of Go, notable for its vast number of possible positions.
Investment in AI

2013: $1,147M
2014: $2,613M
2015: $3,297M
2016: $4,093M
2017: $5,425M
2018: $9,334M
Types of Artificial Intelligence
Algorithms

algorithm

a rule (or set of rules) for a software program to solve problems by taking in information and giving out solutions
How does AI work?

Algorithm and data driven

Machine Learning

• Supervised Learning
• Unsupervised Learning
• Reinforcement Learning
• Deep Learning
Use Cases in Financial Services

Trading and Investment Management
Regulatory Compliance
Banking
Consumer Financial Services
AI in Investment Management

AI is currently being used in the investment management industry in the following ways:

- Quantitative and algorithmic trading
- Robo-advisers
- Mutual fund customer service
- Compliance and regulatory monitoring
- Investment strategy modeling
- Risk assessments and market monitoring
In addition to the rules and regulations applicable under the Investment Advisers Act and the Investment Company Act, regulators have provided the following guidance:

- SEC Staff Speeches (e.g., https://www.sec.gov/news/speech/bauguess-big-data-ai)
- SEC FinTech and RegTech Initiatives (https://www.sec.gov/finhub)
AI in Banking

AI is currently being used in banking in the following ways:

• Tools to determine creditworthiness and risk
• Credit underwriting
• Customer service interfaces
• Compliance and regulatory tasks
• Anti-money laundering and risk management
• Risk and market modeling
Applicable Banking Laws

- Equal Credit Opportunity Act (ECOA) and fair lending requirements (15 U.S.C. 1691)
- Fair Credit Reporting Act (FCRA) (15 U.S.C. 1681)
- FTC Unfair, deceptive and abusive acts and practices (UDAAPs)
- Fair Lending Laws
- Regulations governing the “Safety and Soundness” of banking institutions

Consumer Financial Protection Bureau oversight (sought the use of alternative data and modeling techniques in the credit process (2017 Request for Information) (82 Fed Reg 1183)

Federal Reserve’s Board of Governors – speech regarding fair lending and consumer protection risks (2018)

Federal Deposit Insurance Corporation (FDIC) – study regarding the effect of technology on serving the underbanked consumers
Executive Order on AI

On February 11, 2019, President Trump announced the “American AI Initiative” which is “a concerted effort to promote and protect national AI technology and innovation.”

It directs Federal agencies to “pursue a multipronged approach to advance AI, including: promoting sustained AI R&D investment, enhancing access to high quality cyberinfrastructure and data, removing regulatory barriers, ensuring that American leads in the development of technical standards for AI, providing education and training opportunities to prepare the American workforce for AI and implementing an action plan to protect our technological advantage in AI.”
AI in Consumer Financial Services

AI is currently being used in banking in the following ways:

• Fraud detection
• Underwriting
• Pricing
• Account management
• Bank Secrecy Act / Anti Money Laundering
Applicable Laws/Regulations/Guidance

• Fair Credit Reporting Act (FCRA)
• Safety and Soundness - Model Risk Management (Federal Reserve SR 11-7)
• Safety and Soundness - Vendor Risk Management (Federal Reserve SR 13-19)
• Bank Secrecy Act/Anti Money Laundering requirements
Regulatory Update

• Treasury Fintech Report
• GAO Report on Alternative Data
• HFSC Fintech and AI Task Forces
• CFPB Office of Innovation – Innovation Policies and Upstart No Action Letter
• CFPB RFI on Alternative Data and Modeling Techniques
• Joint Statement on Innovative Efforts to Combat Money Laundering and Terrorist Financing (Federal Reserve SR 18-10)
• Federal Reserve Board Governor Lael Brainard, “What are we learning about artificial intelligence in financial services?” (Nov. 2018)
• Supervision and Examination
Other Applicable Regulations

• Privacy and GDPR
• Anti-Competition Laws
• IP and Copyright Laws
• Trade Secrets Act
• State Laws (e.g., Facial Recognition Restrictions)
• European Commissions “Ethics Guidelines for Trustworthy AI”
Select AI related risks

Auditability or “black box”
Bias/Discrimination
Legal and Compliance
Privacy
Data Security
Systemic Risk
Market Concentration
Collusion
Reputational Risks
Legal Issues

Anti-discrimination laws

Privacy
  ◦ GDPR

Data Ownership

IP Protections

Consumer protection laws
  ◦ Fair credit reporting
  ◦ Equal opportunity
  ◦ Fair trade practices

Liability

Cross Border

Export Controls
Implications of AI Adoption
Conclusion
Panelists

Albert Chang, Consumer Financial Protection Bureau – Albert D. Chang serves as Counsel at the Consumer Financial Protection Bureau’s Boston office. He joined the CFPB in 2013 and has worked for the Office of Supervision Policy, Office of Innovation, Office of Fair Lending, and Office of Card and Payment Markets. During his tenure at the Bureau, Albert has served as co-chair of the Bureau’s Alternative Data Working Group and was involved in the 2017 RFI on Alternative Data; the No-Action Letter issued to Upstart Network, Inc.; and the Bureau’s proposed Sandbox policy. Albert entered government service after working at American Express and Ernst & Young, where he specialized in fair lending compliance and model risk management matters. Contact Information: (202) 450-7299; albert.chang@cfpb.gov

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