



2022 Annual Conference

May 16 –18 | Washington, DC | Hybrid Event

Advanced Analytics: Transforming the Industry With People, Processes & Technology

Monday, May 16, 2022

11:15 a.m. – 12:15 p.m.

Whether you're new to the topic or an expert in machine learning, gain practical knowledge to leverage expertise, reimagine problems, deploy capabilities, and capture business value using advanced analytics while controlling for risks and addressing regulatory concerns. During the session panelists discuss successes, challenges, and best practices in implementing advanced analytics.

Moderator: Brad Ahrens
Senior Vice President, Advanced Analytics
FINRA Office of the Chief Executive Officer

Panelists: Terrence Bohan
Vice President, Enforcement Investigations
FINRA Enforcement

Eren Kurshan
Head of Research and Methodology LCD
Morgan Stanley

Kalyan Sengupta
Managing Director and Head of Digitalization of Compliance, Conduct & Operational Risk (CCOR)
J.P. Morgan

Advanced Analytics: Transforming the Industry With People, Processes & Technology Panelists Bios:

Moderator:



Brad Ahrens, Senior Vice President of Advanced Analytics, oversees FINRA's analytics strategy and implementations—including machine learning, artificial intelligence and data visualization—to further enable investor protection and safeguard the financial markets. He also chairs FINRA's Advanced Analytics Leadership Team, which is charged with identifying and deploying analytics opportunities that will maximize the benefits to investors, member firms, and FINRA. Before joining FINRA in September 2021, Mr. Ahrens spent more than 20 years at Charles Schwab. Most recently, he served as Vice President of Risk Technology, Analytics and Change for

the firm's Enterprise Risk Management department. In that role, Mr. Ahrens oversaw the development, testing and implementation of applications used across Charles Schwab's risk management and compliance programs. He also led the Risk Analytics Team providing data engineering and business intelligence to risk partners. Before assuming that role, he worked in various other compliance positions at the firm with a focus on surveillance, sales practice, operations, digital, financial crimes, and building collaborative partnerships to bridge the gap between regulation and technology. Mr. Ahrens holds a BA in International Relations from the University of Wisconsin-Madison.

Panelists:



Terrence Bohan is Vice President of Investigations for FINRA's Department of Enforcement. In this capacity, Mr. Bohan manages Enforcement investigators throughout the country as they investigate potential securities violations and, when warranted, bring formal disciplinary actions against firms and their associated persons. Mr. Bohan also oversees Enforcement's Data Analytics team and the Forensic Investigations and Litigation Support group, which supports FINRA's use of forensic tools and e-discovery technologies. Before he joined FINRA in 2018, Mr. Bohan spent more than 23 years with the SEC's New York Regional Office's broker-dealer

inspection program, primarily as a cause examination manager. In that role, Mr. Bohan identified and developed cases involving fraudulent securities offerings, manipulations, Ponzi schemes, unregistered securities distributions, money laundering, and egregious sales practice schemes. He has worked extensively with law enforcement in the New York area, including the U.S. Attorney's Office, Federal Bureau of Investigation, Internal Revenue Service, Postal Inspection Service, and Manhattan District Attorney's Office. Mr. Bohan received his Bachelor of Science degree in finance from Fordham University.



Eren Kurshan is Head of Research and Methodology leading the research and development efforts in strategic emerging technology areas at Morgan Stanley. Prior to this role, she was the Head of AI and Machine Learning for Client Protection at Bank of America, where she led AI/machine learning-based solution development for fraud and financial crime detection. Dr. Kurshan and her team built the first generation of in-house AIML models covering Bank of America's payment systems portfolio (2nd largest in the US with \$3.8 trillion USD in total payments in 2021) and online banking platforms. Before Bank of America, Dr. Kurshan led a number of AI and data science

programs at Columbia University, J.P. Morgan Investment Bank, and IBM focusing on financial crime detection, cybersecurity and investment banking applications. Dr. Kurshan received her Ph.D. in Computer Science from the University of California. She has been serving as an Executive-in-Residence at Princeton University since 2021.



Kalyan Sengupta is Managing Director and Head of Digitalization of Compliance, Conduct & Operational Risk (CCOR) at JPMorgan Chase & Co. In his current role, he is responsible to digitize and transform the firm's Compliance, Conduct and Risk teams in driving an increasingly data-driven focus into the everyday decision-making and process execution of CCOR's risk management practices. Prior to his current role, Mr. Sengupta was Managing Director of Data, Analytics, Machine Learning and Reporting for Global Banking at Bank of America. In this role, he was responsible for

digital transformation and building a data-driven organization in support of their Wholesale Credit Transformation effort as well as streamlining and supporting Payments, Services and Fulfillment Value Chain as part of their Global Treasury Services Digital Transformation. Prior to his role at Bank of America, Mr. Sengupta spent time at Merrill Lynch, Wachovia, PNC and Mellon Bank where he held several roles both building Asset management and trading and risk systems and trade-related repositories. Mr. Sengupta received a bachelor's degree in Mechanical Engineering from the National Institute of Technology, India, and a master's degree in Computer Science from Birla Institute of Technology and Science, India. Additionally, he obtained Management & Leadership certification from The George Washington University School of Business and completed Executive education from The Scheller College of Business, Georgia Tech.

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Panelists

○ Moderator

- Brad Ahrens, Senior Vice President, Advanced Analytics, FINRA Office of the Chief Executive Officer

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- Terrence Bohan, Vice President, Enforcement Investigations, FINRA Enforcement
- Eren Kurshan, Head of Research and Methodology LCD, Morgan Stanley
- Kalyan Sengupta, Managing Director and Head of Digitalization of Compliance, Conduct & Operational Risk (CCOR), J.P. Morgan



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Resources:

- FINRA Artificial Intelligence in the Securities Industry Page
www.finra.org/rules-guidance/key-topics/fintech/report/artificial-intelligence-in-the-securities-industry
- “Getting Your Analytics Team Right!” Five necessary roles for a successful analytics team. *Towards Data Science* (April 1, 2020)
www.towardsdatascience.com/getting-your-analytics-team-right-b539206dac3d
- Brown, Sara. “How to build a data analytics dream team”, *MIT Management Sloan School* (May 27, 2020)
www.mitsloan.mit.edu/ideas-made-to-matter/how-to-build-a-data-analytics-dream-team
- Stackpole, Beth. “Decisions, Not Data, Should Drive Your Analytics Program”, *MIT Management Sloan School* (June 29, 2021)
www.mitsloan.mit.edu/ideas-made-to-matter/decisions-not-data-should-drive-analytics-programs
- “Building an Analytics Team from the Ground Up”, *Villanova University Blog*.
www.taxandbusinessonline.villanova.edu/blog/building-an-analytics-team-from-the-ground-up/
- Miller, Kelsey. “Data-Driven Decision Making: A Primer for Beginners”, *Northeastern University* (August 22, 2019)
www.northeastern.edu/graduate/blog/data-driven-decision-making/
- Artificial Intelligence/Machine Learning Risk & Security Working Group (AIRS), “Artificial Intelligence Risk & Governance”, *Wharton University of Pennsylvania*
www.ai.wharton.upenn.edu/artificial-intelligence-risk-governance/
- Kozyrkov, Cassie. “AI for all humans: A course to delight and inspire!” Blog, *Google Cloud* (December 6, 2021)
www.cloud.google.com/blog/topics/developers-practitioners/ai-all-humans-course-delight-and-inspire
- Redman, Thomas. “Your Data Initiatives Can’t Just Be for Data Scientists”, *Harvard Business Review* (March 22, 2022)
www.hbr.org/2022/03/your-data-initiatives-cant-just-be-for-data-scientists

- Harvard Business Review: Embracing Data Analytics for More Strategic Value Pulse Survey (2021)

www.hbr.org/resources/pdfs/comm/sisense2/EmbracingDataAnalytics.pdf

- IOSCO The Use of Artificial Intelligence and Machine Learning by Market Intermediaries and Asset Managers Consultation Report (2020)

www.iosco.org/library/pubdocs/pdf/IOSCOPD658.pdf

- Thomson Reuters Demystifying Artificial Intelligence (AI): A Legal Professional's Guide Through the Noise

www.legal.thomsonreuters.com/en/insights/white-papers/demystifying-ai



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May 2022



Helpful Reading & Videos

PEOPLE

- [Getting Your Analytics Team Right](https://towardsdatascience.com/getting-your-analytics-team-right-b539206dac3d)
<https://towardsdatascience.com/getting-your-analytics-team-right-b539206dac3d>
- [How to Build an Analytics Dream Team](https://mitsloan.mit.edu/ideas-made-to-matter/how-to-build-a-data-analytics-dream-team)
<https://mitsloan.mit.edu/ideas-made-to-matter/how-to-build-a-data-analytics-dream-team>
- [Building an Analytics Team from the Ground Up](https://taxandbusinessonline.villanova.edu/blog/building-an-analytics-team-from-the-ground-up/)
<https://taxandbusinessonline.villanova.edu/blog/building-an-analytics-team-from-the-ground-up/>

PROCESSES & DECISION MAKING

- [Decisions, Not Data, Should Drive Your Analytics Program](https://mitsloan.mit.edu/ideas-made-to-matter/decisions-not-data-should-drive-analytics-programs)
<https://mitsloan.mit.edu/ideas-made-to-matter/decisions-not-data-should-drive-analytics-programs>
- [Data Driven Decision Making: A Primer](https://www.northeastern.edu/graduate/blog/data-driven-decision-making/)
<https://www.northeastern.edu/graduate/blog/data-driven-decision-making/>
- [Embracing Analytics for Strategic Value](https://hbr.org/resources/pdfs/comm/sisense2/EmbracingDataAnalytics.pdf)
<https://hbr.org/resources/pdfs/comm/sisense2/EmbracingDataAnalytics.pdf>
- [Your Data Initiatives Can't Be Just for Data Scientists](https://hbr.org/2022/03/your-data-initiatives-cant-just-be-for-data-scientists)
<https://hbr.org/2022/03/your-data-initiatives-cant-just-be-for-data-scientists>

Helpful Reading & Videos

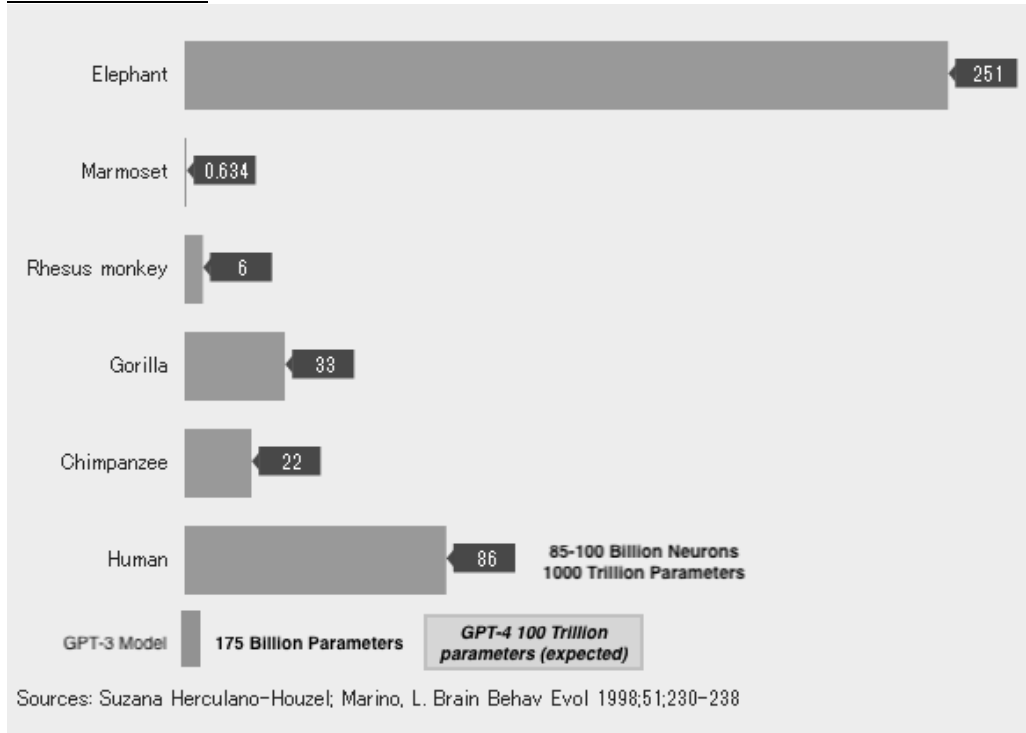
MANAGING & SUPERVISING THE RISKS

- [Artificial Intelligence in the Securities Industry](https://www.finra.org/rules-guidance/key-topics/fintech/report/artificial-intelligence-in-the-securities-industry)
<https://www.finra.org/rules-guidance/key-topics/fintech/report/artificial-intelligence-in-the-securities-industry>
- [The Use of AI & Machine Learning by Market Intermediaries & Asset Managers](https://www.iosco.org/library/pubdocs/pdf/IOSCOPD658.pdf)
<https://www.iosco.org/library/pubdocs/pdf/IOSCOPD658.pdf>
- [Artificial Intelligence Risk & Governance](https://ai.wharton.upenn.edu/artificial-intelligence-risk-governance/)
<https://ai.wharton.upenn.edu/artificial-intelligence-risk-governance/>

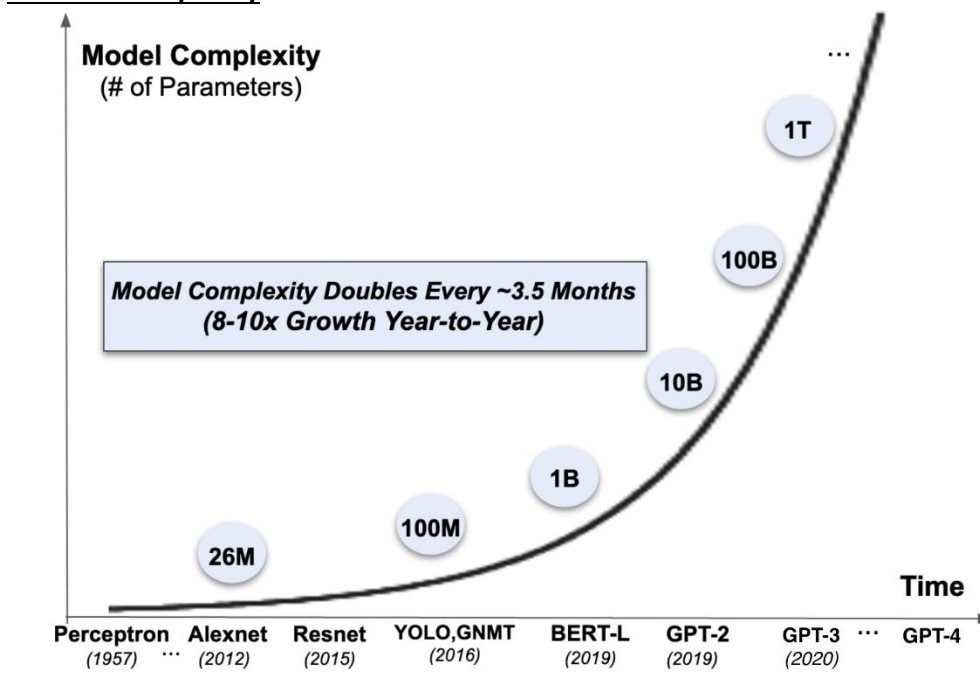
AI & MACHINE LEARNING

- [Making Friends with Machine Learning](https://cloud.google.com/blog/topics/developers-practitioners/ai-all-humans-course-delight-and-inspire)
<https://cloud.google.com/blog/topics/developers-practitioners/ai-all-humans-course-delight-and-inspire>
- [Demystifying AI: A Legal Professional's Guide Through the Noise](https://legal.thomsonreuters.com/en/insights/white-papers/demystifying-ai)
<https://legal.thomsonreuters.com/en/insights/white-papers/demystifying-ai>

1. Neuron Count



2. Model Complexity



3. Self-Regulating Models

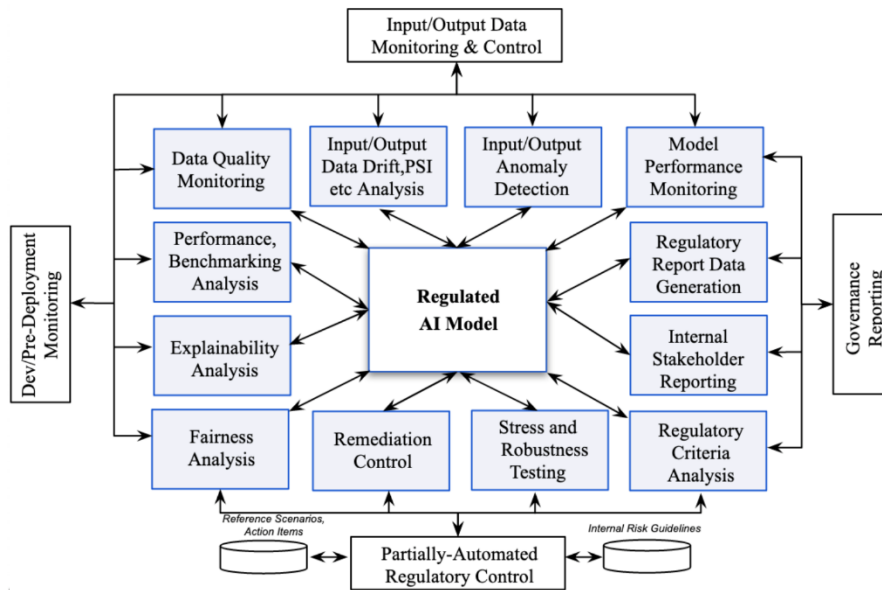


Figure 7: High-level view of the AI system framework with self-regulatory capabilities.

4. Model Governance

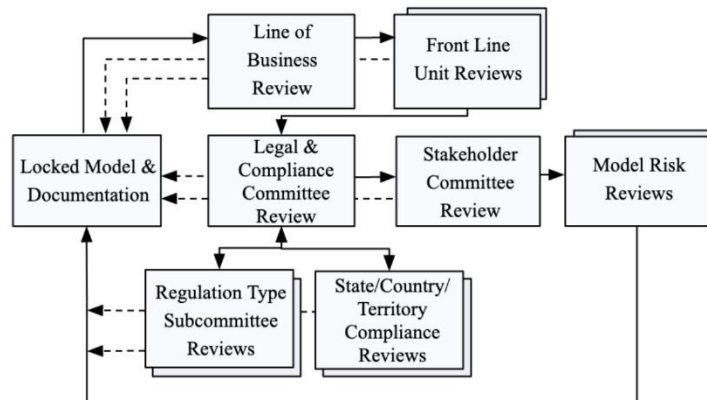
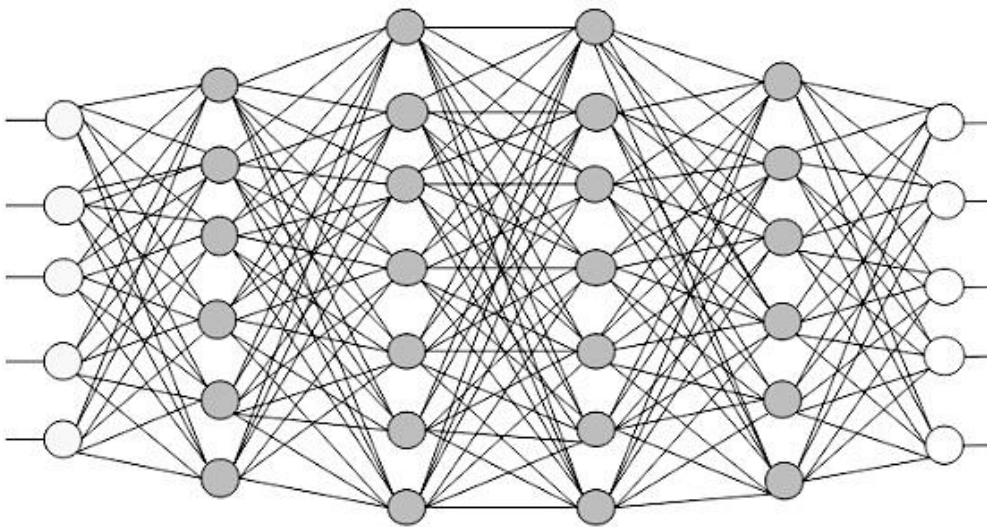
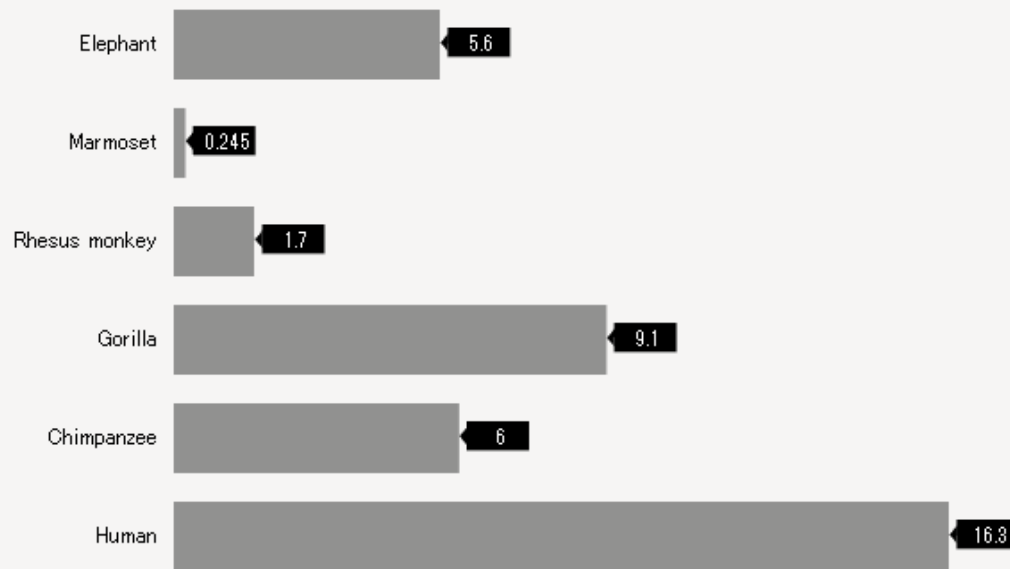


Figure 4: A sample partial view of AI model governance committee reviews.

5. Neural Network



Backup



Sources: Suzana Herculano-Houzel; Marino, L. Brain Behav Evol 1998;51;230-238