



# Artificial Intelligence and Machine Learning in Finance

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# Outline

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- What is artificial intelligence?
- How is it being used in finance?
- Are there financial stability implications?

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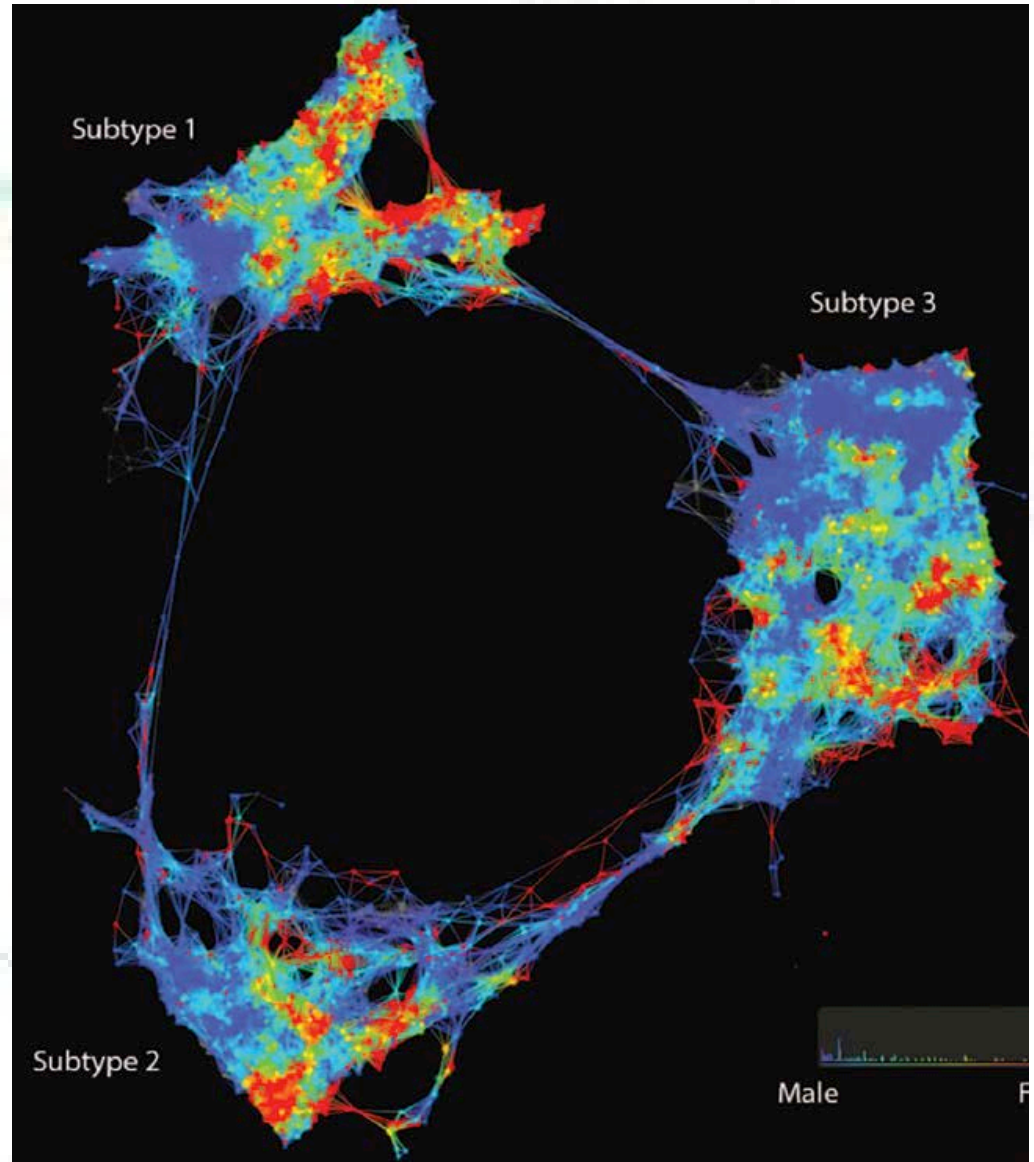


# What is Artificial Intelligence?



It's not the  
bad guy  
from the  
Terminator  
movies!

It's more  
like this:



# Definitions

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## Big Data

Storage and analysis of large and/or complicated datasets



"Why Grandma, what big data you have!"

# Definitions

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## **Artificial intelligence**

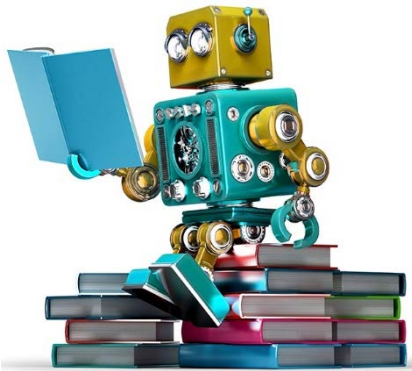
Theory and development of computer systems able to perform tasks that have traditionally required human intelligence.

# Definitions

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## Machine Learning

A method of designing algorithms that automatically optimize through experience and with limited or no human intervention.





# Definitions

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Artificial  
Intelligence

Big Data  
Analytics

Machine  
Learning

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How is it being used in finance?

# Uses of AI

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## Consumer facing applications

Chatbots and  
virtual  
assistants



Insurance  
pricing

Credit scoring

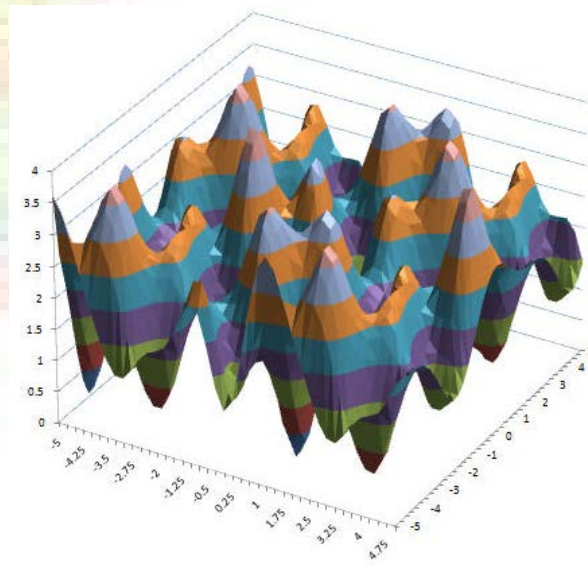
# Uses of AI

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## Operations focused uses

Capital optimization

Model risk management and validation



Market Impact Analysis

Stress testing

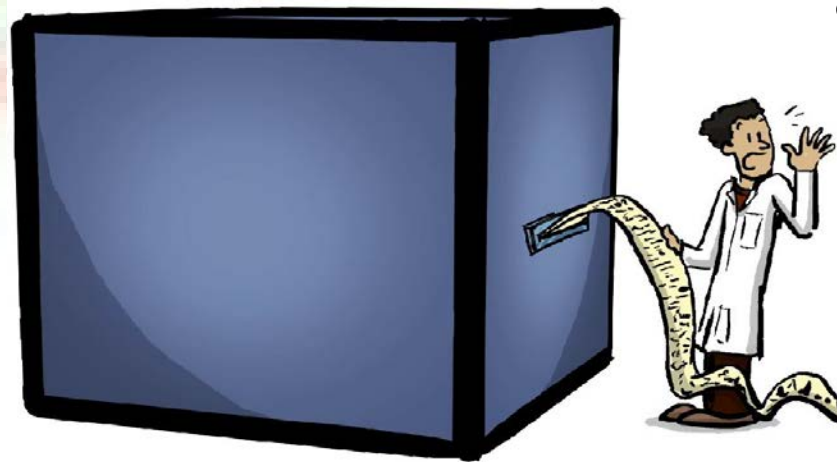
# Uses of AI

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## Trading and Portfolio Management

Identification  
of price  
signals

News and  
research  
analysis



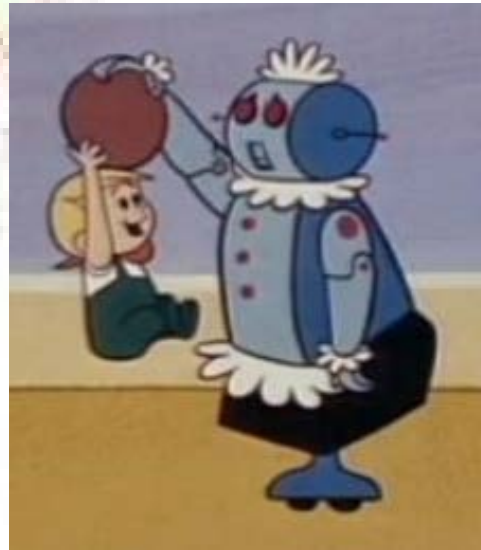
Trade  
execution

# Uses of AI

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## Compliance

Monitoring  
behavior



Data quality  
assurance

KYC/AML

# Uses of AI





# Uses of AI



What we hear traders saying



What AI hears traders saying



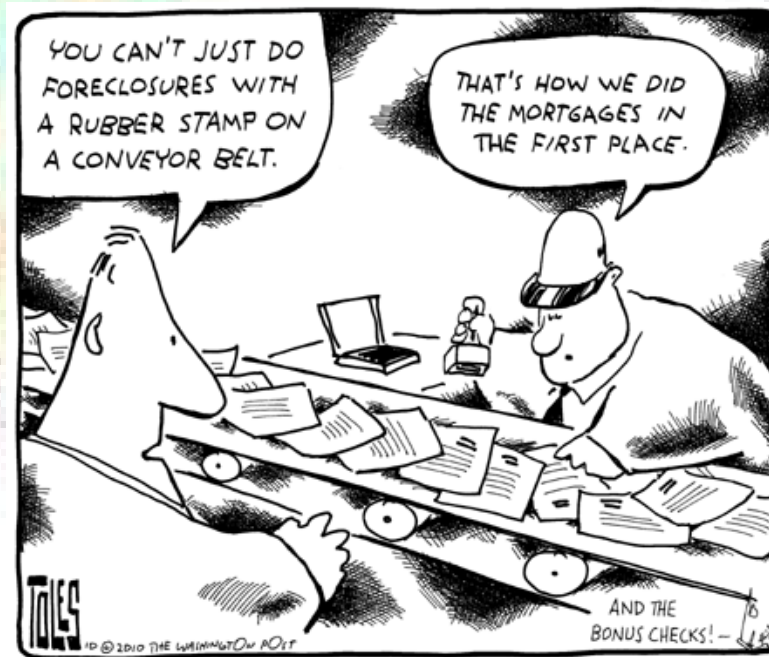


# Uses of AI

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## Supervision

Compliance monitoring



Systemic risk identification

Fraud detection

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# Financial Stability Implications of AI?

# Financial Stability Benefits

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Easier regulatory compliance

Greater efficiency

Improved systemic risk monitoring



Improved risk management

Better fraud detection

Improved supervisory effectiveness

# Financial Stability Risks

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Interpretability  
issues

Increased  
third party  
dependencies

Input → **BLACK BOX** → Output

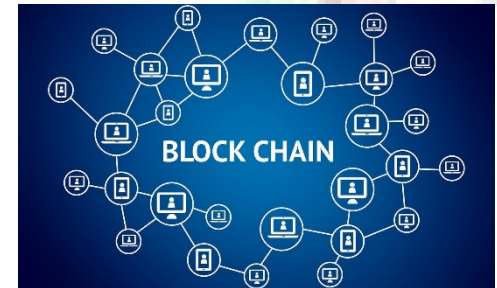
Data privacy and  
governance  
issues

Human resource  
deficiencies

# Final Thoughts

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AI is not a product it is a foundation



ROBO ADVISORS

