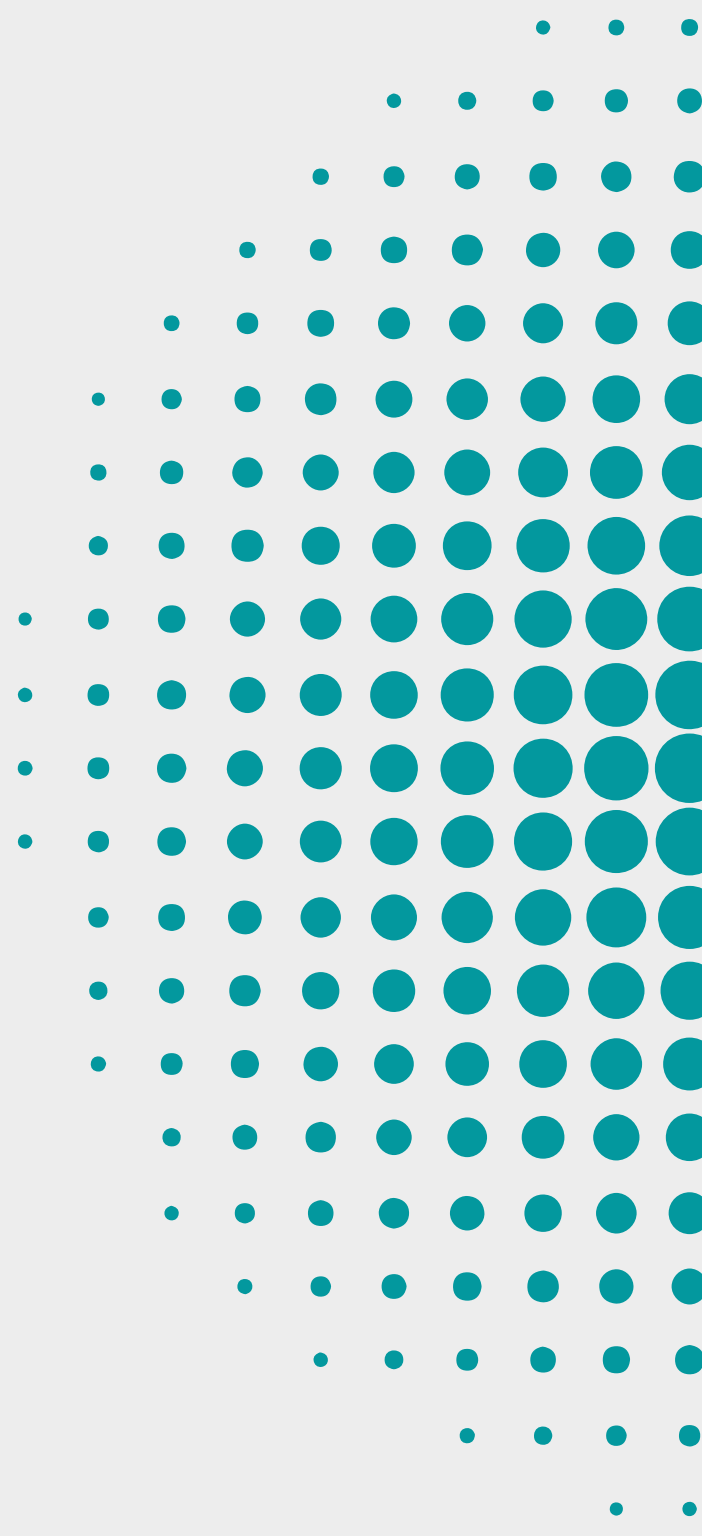


# ML Toolbox for Financial Services

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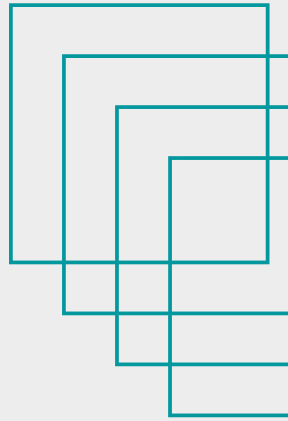
## Finbridge





# Overview

## ML Tools



1. What is ML?

2. Churn Prediction

3. Financial Metrics

4. AI Pricing

5. Ratings & Scores

6. Market Data

7. Anomaly Detection

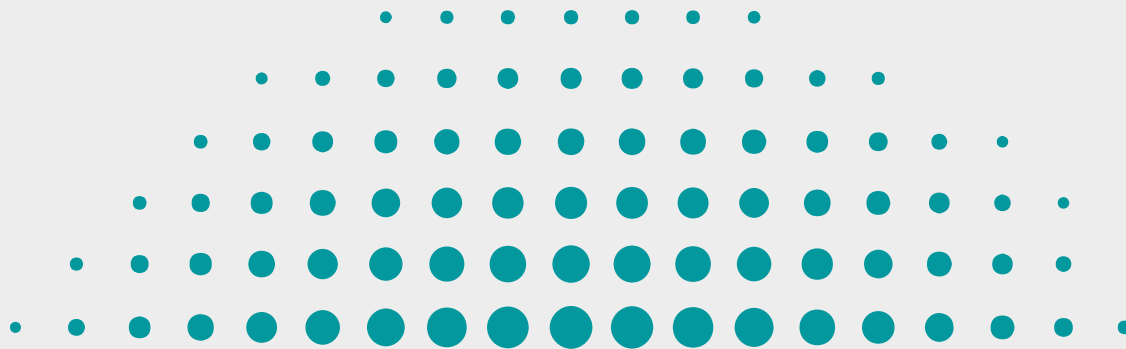
8. Compliance

9. Recommendation

10. Clustering

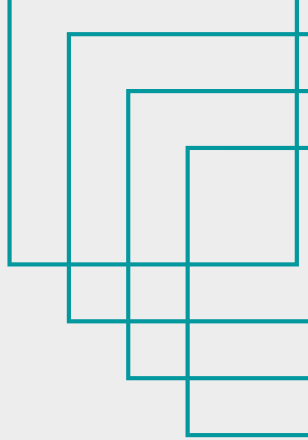
11. Customized Solution

12. Contact





# 1. What is ML?

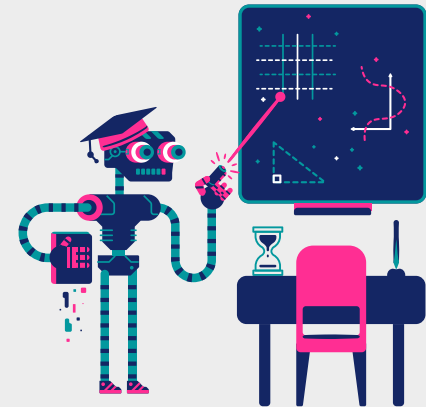


## Machine Learning (ML)

- combines algorithms & statistical models
- learns patterns and relationships from historical data
- is successfully used in data analysis & automation

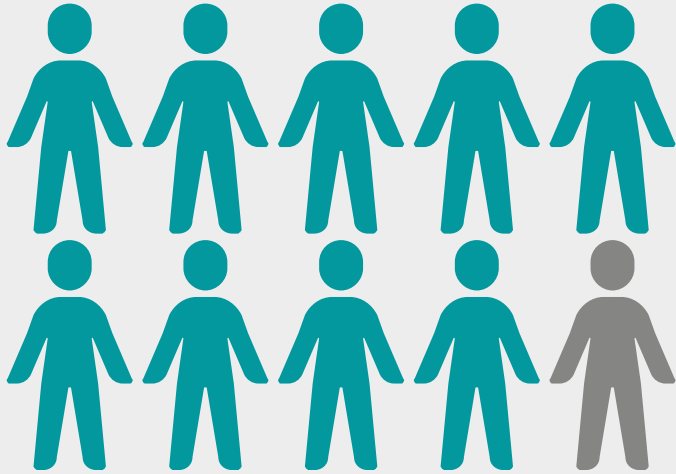
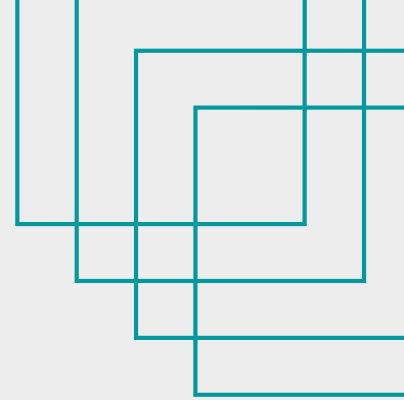
## types of ML

- Supervised ML learns given patterns
  - ▷ Regression: predicting continuous numbers
  - ▷ Classification: modelling discrete classes
- Unsupervised ML discovers hidden patterns
  - ▷ Outlier detection: recognising anomalies
  - ▷ Clustering: grouping of related instances





# 2. Churn Prediction

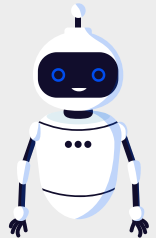


Early warning:  
Disproportionate churn of  
customers and deposits  
can lead to unexpected  
financial losses



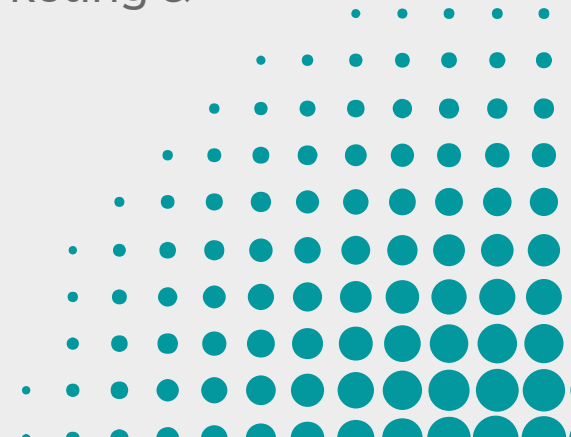
customer churn is

- when customers terminate their contracts
- a known problem for businesses like
- insurances and retail banking



Finbridge's ML models can

- ▷ accurately predict which customer will churn
- ▷ uncover reasons for churn as well as retention
- ▷ strengthen your sales, marketing & customer retention





# 3. Financial Metrics

financial metrics & indicators are

- e.g. NPV, XVA, HRL, VaR, etc.
- relevant for management decisions
- resource-intensive to compute



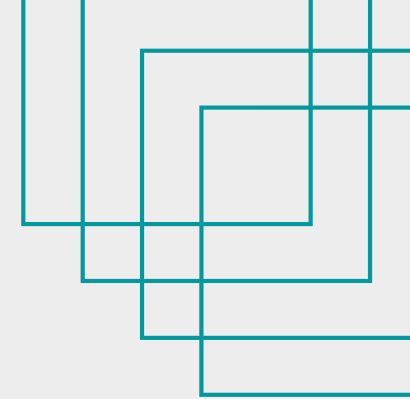
Finbridge's ML models provide

- deeper insights into the influencing factors & movements of financial metrics
- detailed explanations of balance sheet developments & individual positions
- accurate valuations & forecasts for portfolios



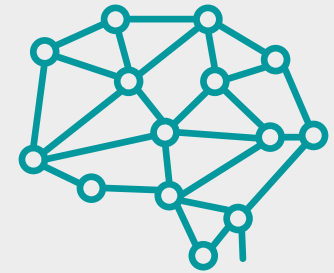


# 4. AI Pricing



conventional pricing troubles

- portfolios consist of many & complex instruments
- each instrument has its own valuation conventions
- traditional models are computationally expensive and time-consuming (execution at night processing)



pricing with Finbridge's Neural Networks provides

- ▷ equally accurate depiction of instruments
- ▷ significantly faster calculations of prices
- ▷ scalable use in real time (no waiting for night processing)





# 5. Ratings & Scores



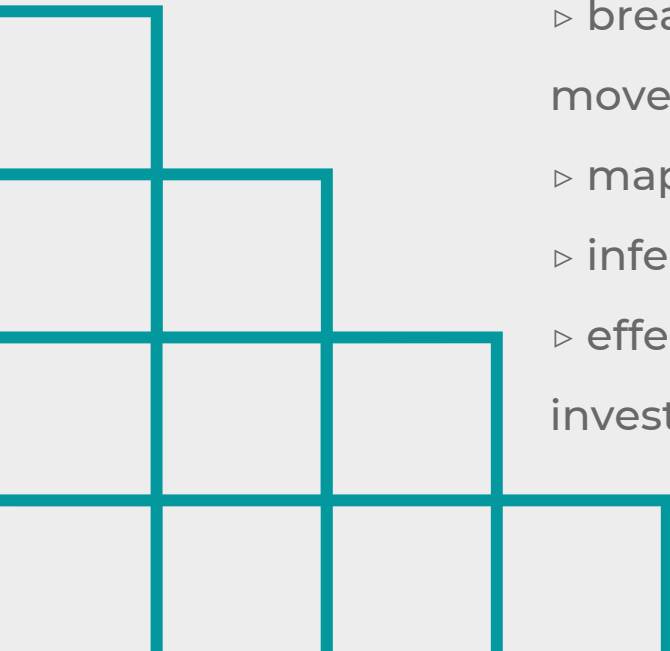
credit ratings and ESG scores



- are important risk indicators represented in the form of *classes*
- are produced by rating agencies with proprietary models
- use sources & methodologies that are not always transparent

Finbridge's ML models enable the

- ▷ breakdown of influencing factors and movements of risk indicators
- ▷ mapping to a bank's internal taxonomy
- ▷ inference of missing ratings
- ▷ effective risk management & better investment control





# 6. Market Data

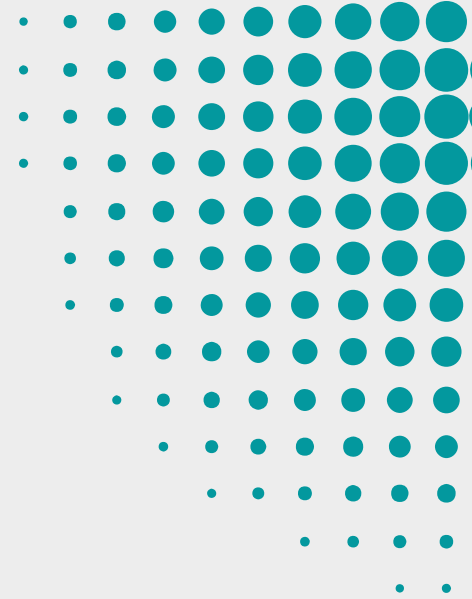


market data

- is of central importance in every bank
- is constantly increasing in volume
- poses a challenge for the infrastructure & data processing

Finbridge's ML models promise a

- ▷ fast analysis of Big Data (also in the cloud)
- ▷ variety of applications, e.g.
  - data quality check (outlier detection, etc.)
  - filling in missing data and critical gaps
  - powerful forecasts of prices and indices







# 7. Anomaly Detection

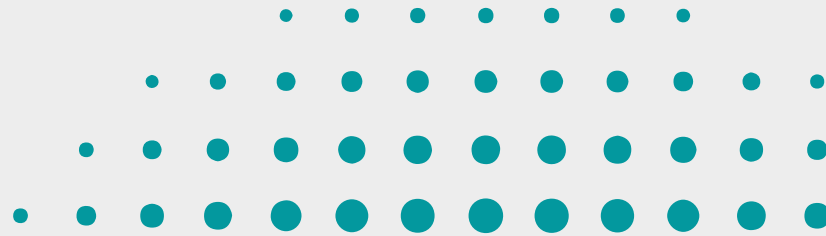
How to deal with outliers?

- business processes contain special cases or anomalies
- these must be found, separated, corrected or removed
- human diligence & heuristics are not enough to find all outliers in Big Data



Finbridge's ML-Outlier models can

- ▷ automate the monitoring of transaction data
- ▷ enhance fraud detection & prevention
- ▷ find and explain outlying transactions in balance sheets
- ▷ scale in a resource-efficient way

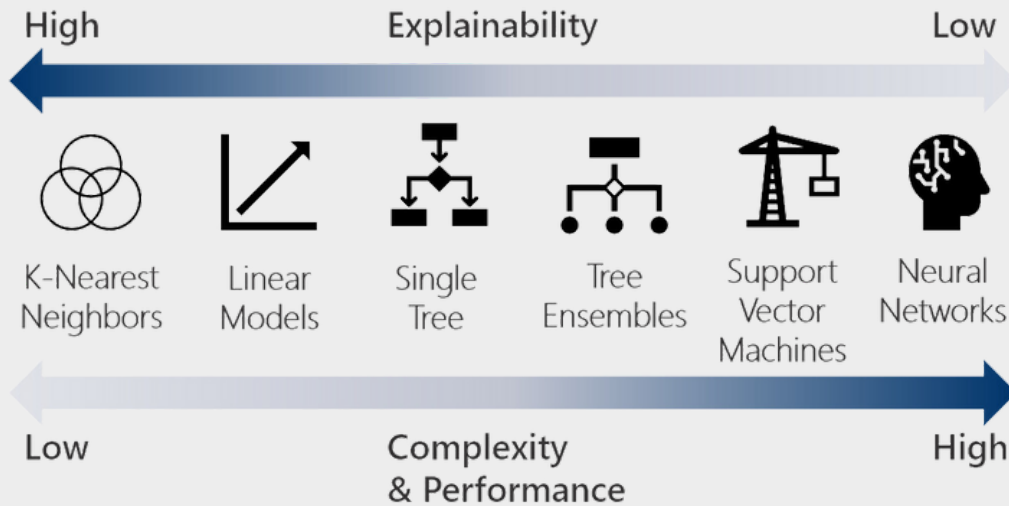




# 8. Compliance

performance vs. transparency

- banks prefer high-performance ML models
- regulators prefer explainable ML models
- the problem: performance & explainability have an inverse relation

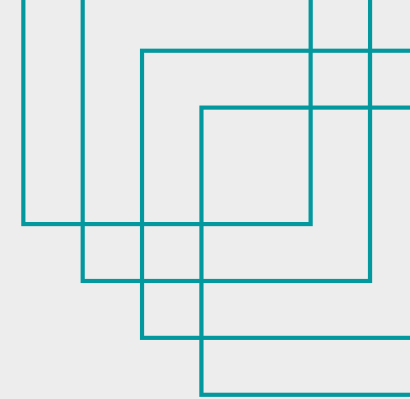


Explainable-AI (XAI) by Finbridge

- XAI makes complex ML models easily interpretable
- XAI processing enables
  - more transparency for compliance
  - more insights for business reports
  - the use of powerful ML models

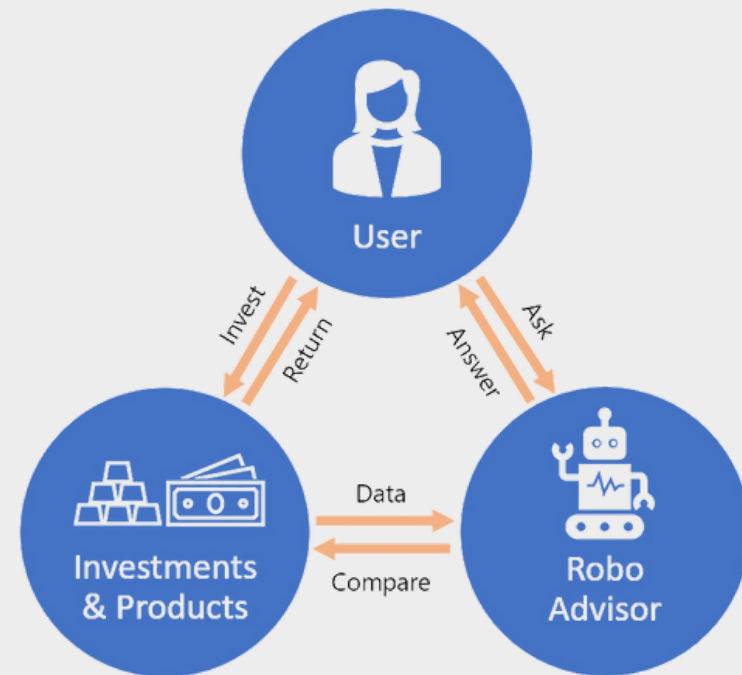


# 9. Recommendation



investment advice & analysis via Finbridge's Robo-Advisor

- robo-advisors are recommendation systems that can analyse products and create individual offers based on
  - ▷ objective data such as key product features
  - ▷ individual data such as investment goals & risk tolerances of the user
- degree of automation
  - ▷ as support for customer-facing advisors
  - ▷ as powerful tool for internal traders
  - ▷ as recommendation app for private clients





# 10. Clustering

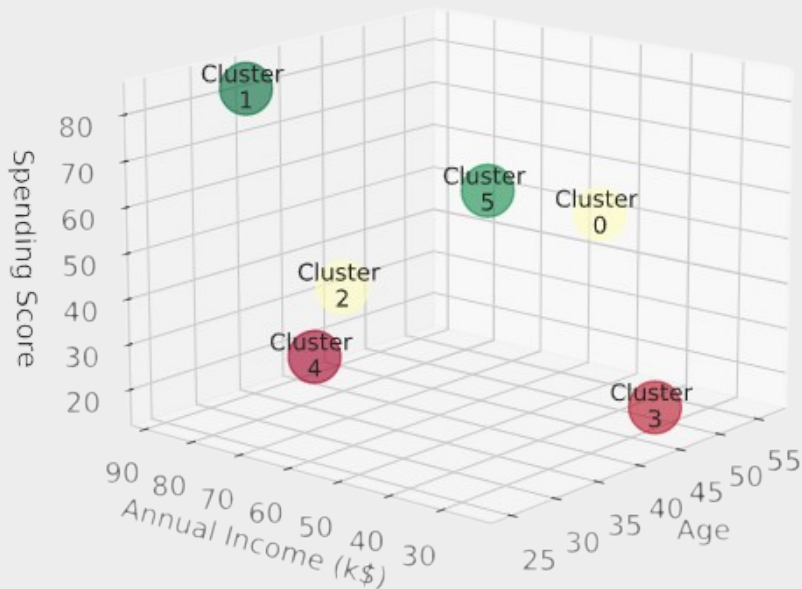


Lots of data and no clear structure?

- Finbridge's ML clustering can be used to find groups, hierarchies or segments in e.g. socio-economic data and gain new insights



Customer Clusters



applications

- customer/market segmentation: What types of customers are there? Is there a group of high-value customers?
- product segmentation: Which products have similar returns? Which have similar risks?





# 11. Customized Solution



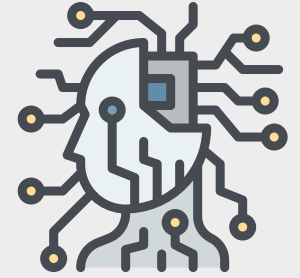
interactive UI for ML software by Finbridge

- provides control over key control parameters
- enables the creation of statistics and graphs
- makes ML applications configurable in low-code or no-code form
- automates the execution of all processing steps, including:
  - ▷ data import & cleaning
  - ▷ machine learning
  - ▷ data analysis
  - ▷ presentation of results





# 12. Contact



Start your AI project!

Implement your ideas, shape the future, ensure success.

Get started now!



**Dr. Carsten Keller**

Finbridge accompanies you from the preliminary survey through the design and development all the way to the deployment in production.



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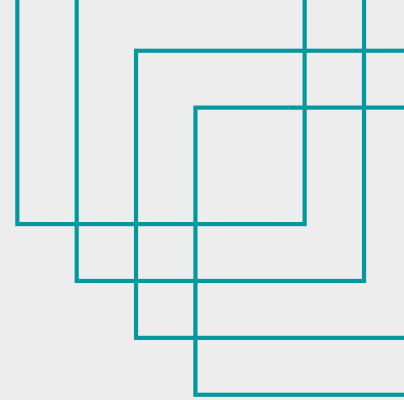
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<https://www.finbridge.de/machine-learning-en/>



# ML-Team



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