AI w finansach – nie taki diabeł straszny…

Możliwości, sposoby praktycznego zastosowania, powiązane wyzwania

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AI

« It's the science of training computers through data to perform tasks that typically require human intelligence to complete. »

- Analiza tekstu, obrazu, dźwięku…
- Moc przetwarzania
- Uczenie maszynowe i głębokie
- Nauka na Big Data

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Fala AI pojawiła już się na horyzoncie…

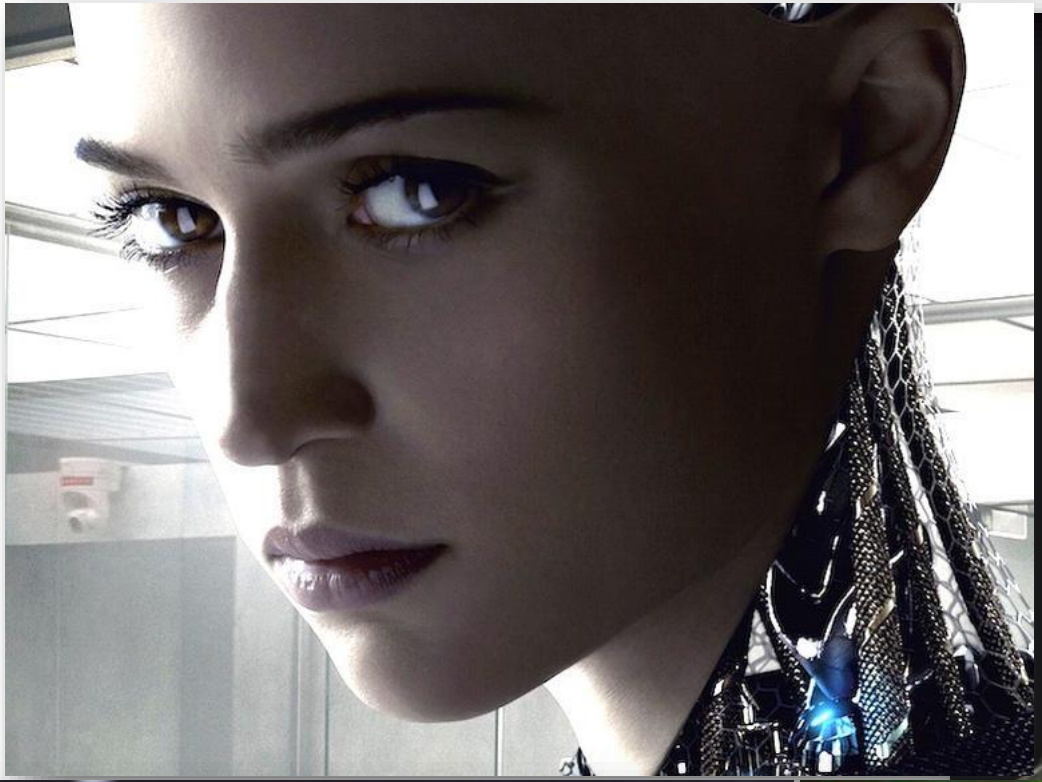
It’s time to evaluate how we can better use the strengths of machines to augment our ability to understand and improve the world around us.

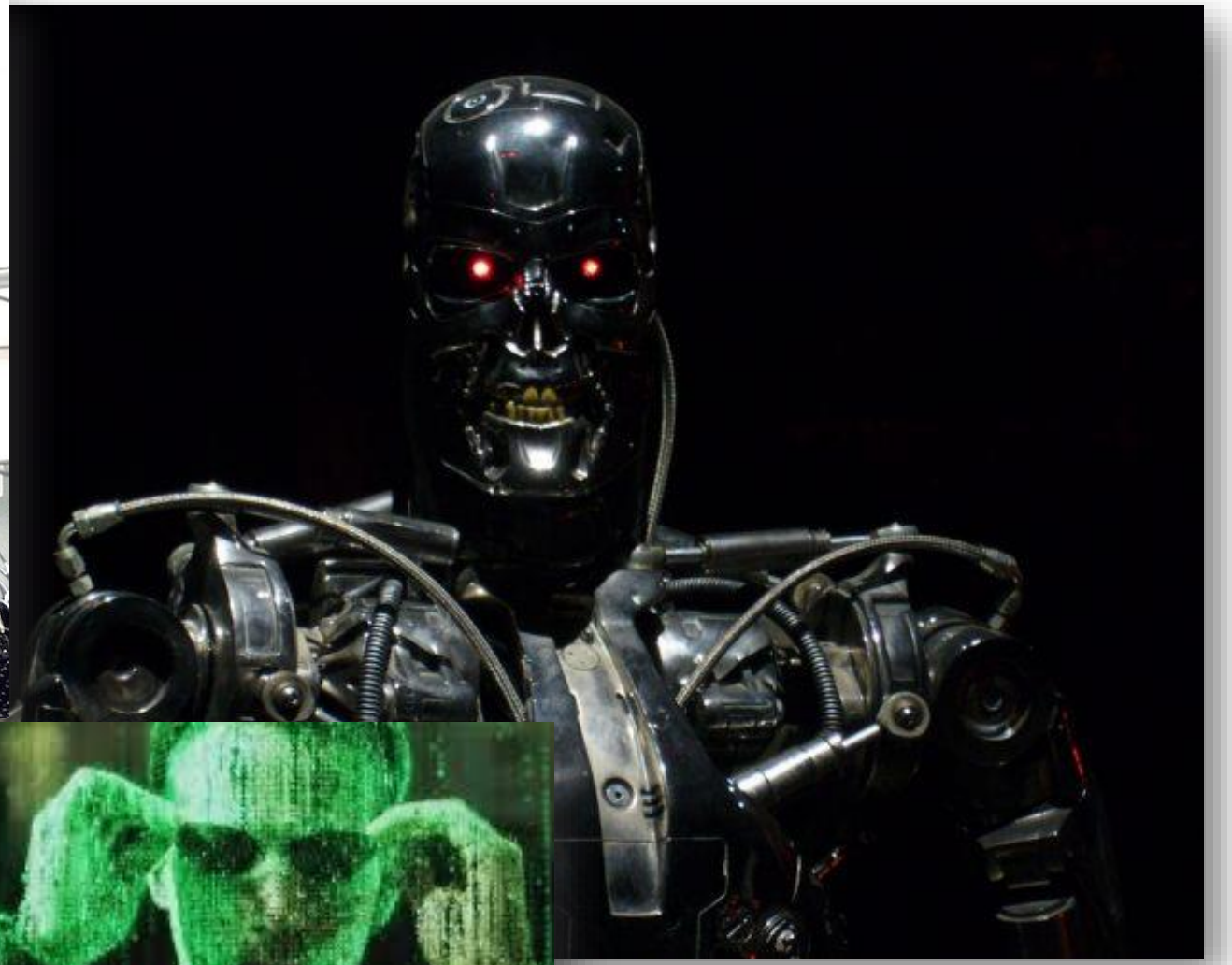
“It’s not a matter of if but when — there is the need for us to be fast while the world is changing fast.”

Respondent to SAS/GARP survey

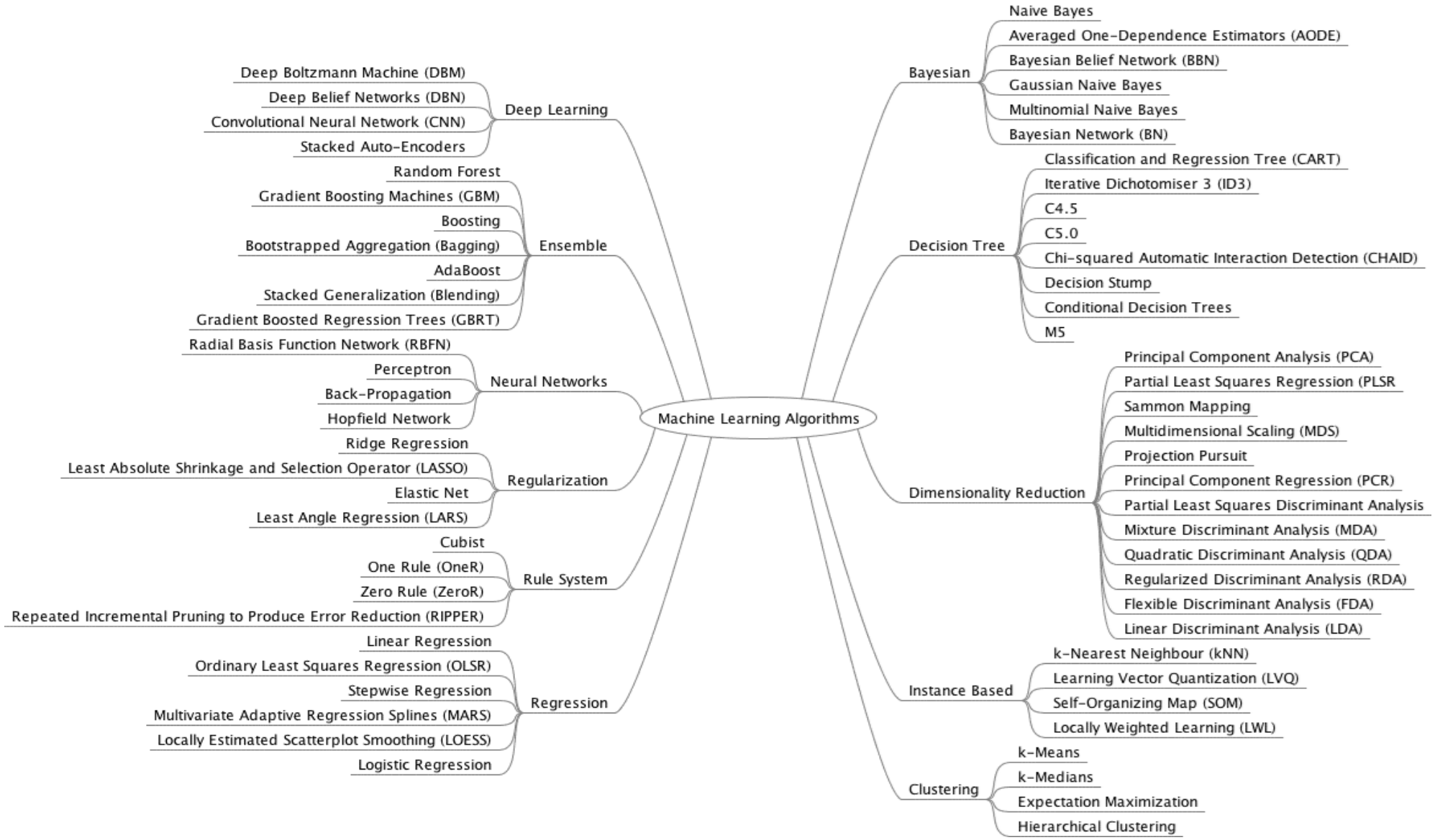
Jak wygląda AI?

Jak wyobrażamy sobie AI?





Mapa algorytmów Machine Learning / Deep Learning



Jak podejść do budowy rozwiązań opartych o AI?

Rozwiązania AI

Banking	Government	Heath and Life Sciences	Manufacturing and Energy	Communications
Fraud Detection	Smart Cities	Predictive Diagnostics	Supply Chain Optimization	Conversational Chat Bots
Credit Analysis	Sensor Fusion	Biomedical Imaging	Automated Defect Detection	Contextual Marketing
Automated Financial Advisors	Facial Recognition	Health Monitor	Energy Forecasting	Network Analytics

Aplikacje i funkcje AI

Pattern Recognition ● Prediction ● Classification ● Image Recognition ● Motion Detection ● Speech to Text ● Cognitive Search: Recommendation Engines + Q&A System ● Natural Language Interaction ● Natural Language Generation ● Sentiment Analysis

Narzędzia IA

Deep Learning	Natural Language Understanding
Machine Learning	Natural Language Processing

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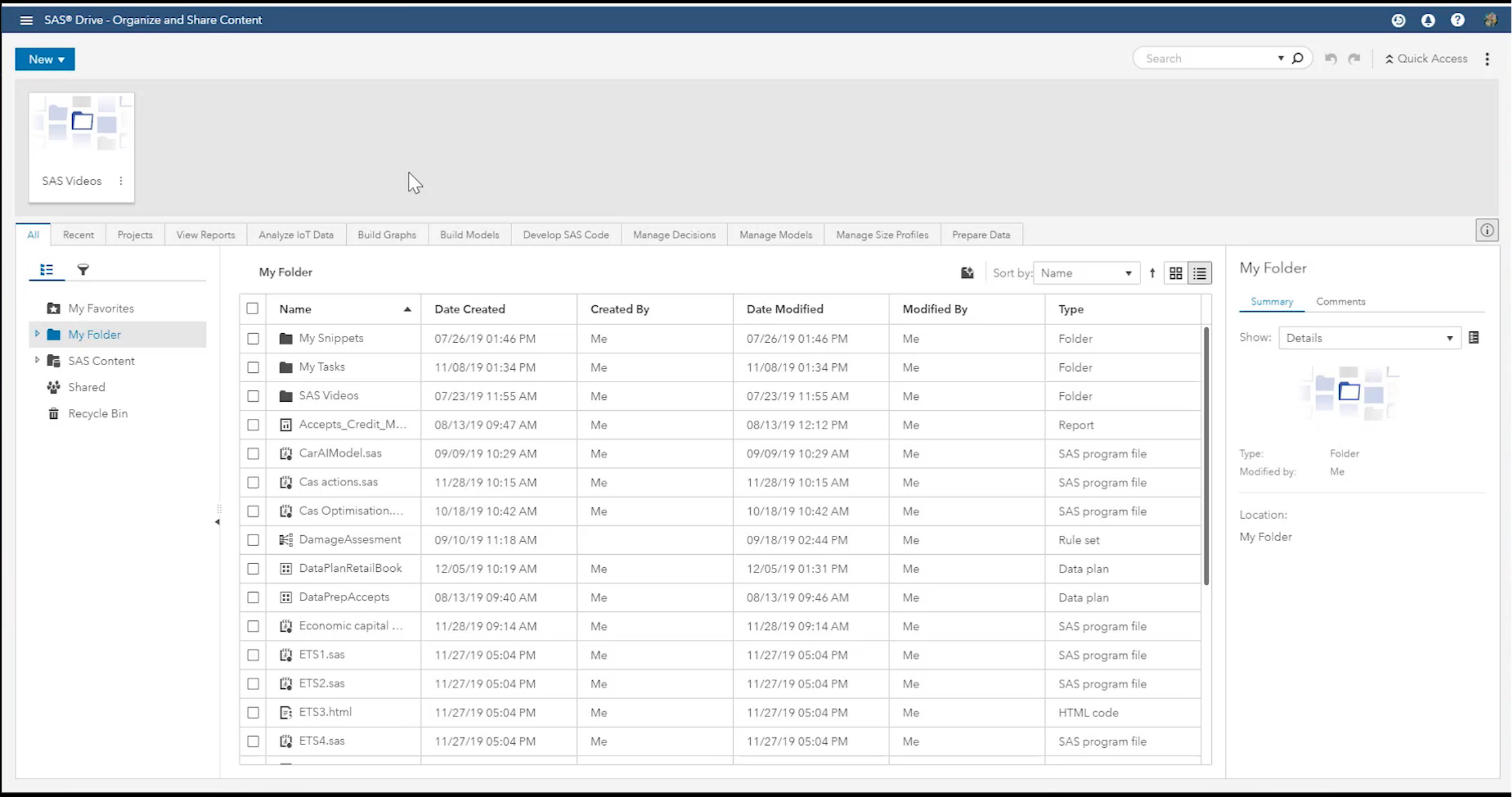
Wybrane przypadki zastosowania w obszarze Zarządzania Ryzykiem

- Chat-boty w procesach ryzyka kredytowego, wnioskowania o limit, autoryzacji użytkowników
- Rozpoznawanie obrazów (np. z Social Media) celem wykorzystania w procesach Risk/Fraud/Windykacja
- Przegląd i ocena dokumentów/obrazów np. celem weryfikacji zabezpieczeń kredytowych
- Wycena aktywów/nieruchomości/szkód w oparciu o obrazy
- Ciągły automatyczny monitoring standingu kredytowego na bazie ustrukturyzowanych jak i nieustrukturyzowanych danych
- Zaawansowana analiza zachowania klientów, prognozowanie transakcji
- Systemy Wczesnego Ostrzegania (wraz z mechanizmem Stress Testów) na bazie strumienia transakcji


SAS® Drive - Organize and Share Content
New
Search
Quick Access
SAS Videos
All
Recent
Projects
View Reports
Analyze IoT Data
Build Graphs
Build Models
Develop SAS Code
Manage Decisions
Manage Models
Manage Size Profiles
Prepare Data
My Favorites
My Folder
SAS Content
Shared
Recycle Bin
My Folder
Sort by: Name
Name
Date Created
Created By
Date Modified
Modified By
Type
My Snippets 07/26/19 01:46 PM Me 07/26/19 01:46 PM Me Folder
My Tasks 11/08/19 01:34 PM Me 11/08/19 01:34 PM Me Folder
SAS Videos 07/23/19 11:55 AM Me 07/23/19 11:55 AM Me Folder
Accepts_Credit_M... 08/13/19 09:47 AM Me 08/13/19 12:12 PM Me Report
CarAIModel.sas 09/09/19 10:29 AM Me 09/09/19 10:29 AM Me SAS program file
Cas actions.sas 11/28/19 10:15 AM Me 11/28/19 10:15 AM Me SAS program file
Cas Optimisation.... 10/18/19 10:42 AM Me 10/18/19 10:42 AM Me SAS program file
DamageAssesment 09/10/19 11:18 AM 09/18/19 02:44 PM Me Rule set
DataPlanRetailBook 12/05/19 10:19 AM Me 12/05/19 01:31 PM Me Data plan
DataPrepAccepts 08/13/19 09:40 AM Me 08/13/19 09:46 AM Me Data plan
Economic capital ... 11/28/19 09:14 AM Me 11/28/19 09:14 AM Me SAS program file
ETS1.sas 11/27/19 05:04 PM Me 11/27/19 05:04 PM Me SAS program file
ETS2.sas 11/27/19 05:04 PM Me 11/27/19 05:04 PM Me SAS program file
ETS3.html 11/27/19 05:04 PM Me 11/27/19 05:04 PM Me HTML code
ETS4.sas 11/27/19 05:04 PM Me 11/27/19 05:04 PM Me SAS program file
My Folder
Summary
Comments
Show: Details
Type: Folder
Modified by: Me
Location:
My Folder

Czego się spodziewamy po AI?

Lepsze wyniki

- Mniej założeń
- Lepsza matematyka
- Wykorzystanie większej ilości danych
- Procesy identyfikowalne i interpretowalne

Automagiczność

- Wrzuć dane i już!
- Zautomatyzuj proces
- Eliminuj problemy

Niższe koszty i wyższe przychody

- Maszyny wykonują pracę wspierając ekspertów
- Zapewnienie „dopalacza”
- Namacalność korzyści biznesowych

Zaangażowanie Ekspertów

- Lepszy interfejs użytkownika: low-code
- Uwzględnienie danych nieustrukturyzowanych, mowy, tekstu i obrazów

Wyszło ja zwykle ;)

Microsoft Chat Bot Goes On Racist, Genocidal Twitter Rampage

Less than 24 hours after the program was launched, Tay reportedly began to spew racist, genocidal and misogynistic messages to users.

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FEATURE 12 April 2018, updated 27 April 2018

Discriminating algorithms: 5 times AI showed prejudice

Artificial intelligence is supposed to make life easier for us all – but it is also prone to amplify sexist and racist biases from the real world

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IMPERFECT SCORE

Algorithms are making the same mistakes assessing credit scores that humans did a century ago

By Rachel O'Dwyer • May 14, 2018

AMERICAN BANKER All Sections

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Is AI making credit scores better, or more confusing?

By
Penny Crosman

Published
February 14 2017, 3:35pm EST

Print

A consumer's credit score used to be a commonly understood number — the tir

Rise of the racist robots – how AI is learning all our worst impulses

There is a saying in computer science: garbage in, garbage out. When we feed machines data that reflects our prejudices, they mimic them – from antisemitic chatbots to racially biased software. Does a horrifying future await people forced to live at the mercy of algorithms?

Interpretowalność modeli

BlackRock to use machine learning to gauge liquidity risk

24 Jul 2017

Firm close to rolling out new models for redemption risk and market liquidity

BlackRock shelves unexplainable AI liquidity models

12 Nov 2018

Risk USA: Neural nets beat other models in tests, but results could not be explained

Główne wyzwania w świecie AI

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Główne wyzwania w zastosowaniu AI

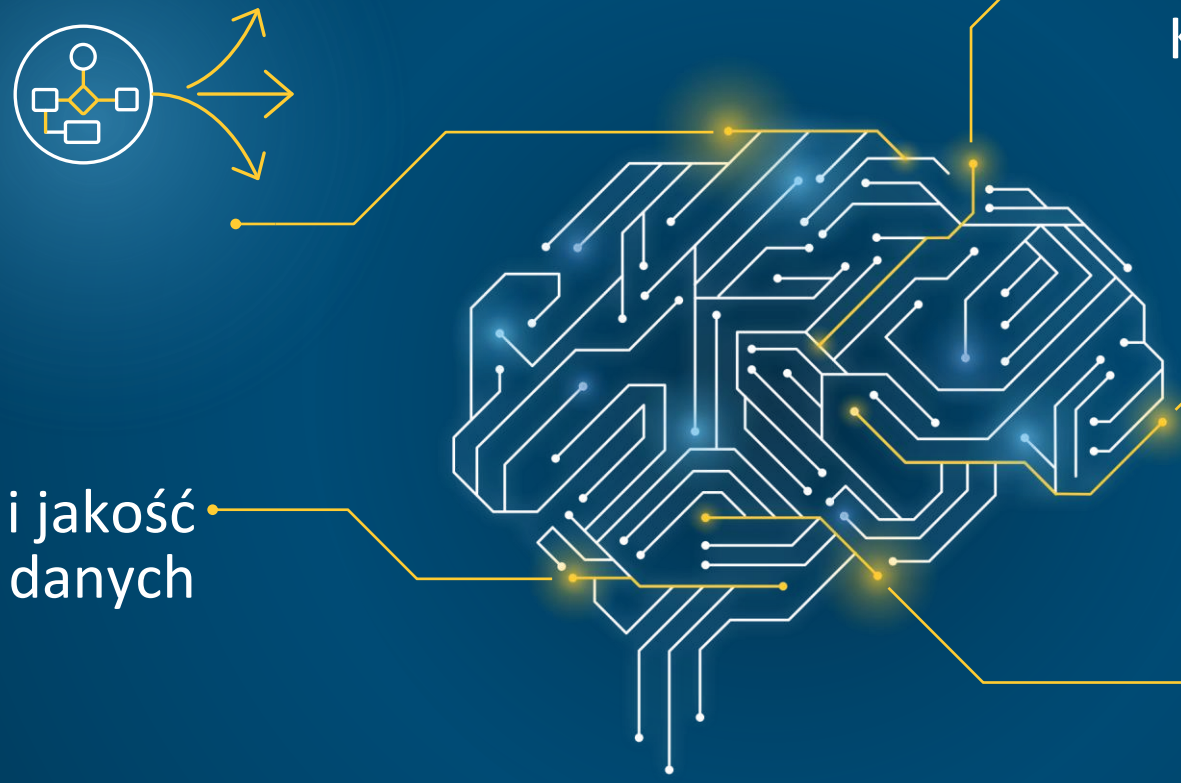
Interpretowalność modeli

Zespół & Kompetencje

Technologia

Dostępność i jakość danych

Koszty & czas dojścia do sukcesu



Source: SAS and GARP: Artificial intelligence in banking and risk management survey

Czy AI ma sens w Ryzyku?

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Solutions

Analytics	Techniques	GINI Δ
Individuals A	Gradient Boost.	15 p.p.
Individuals B	Random Forest	11 p.p.
Individuals C	Neural Networks	6 p.p.
Companies A	Random Forest	10 p.p.
Companies B	Logistic Reg	11 p.p.
Companies C	Gradient Boost.	6 p.p.
Indiv. / Comp. A	Logistic Reg	9 p.p.
Indiv. / Comp. B	Logistic Reg	14 p.p.

Credit portfolio

US$179 BI

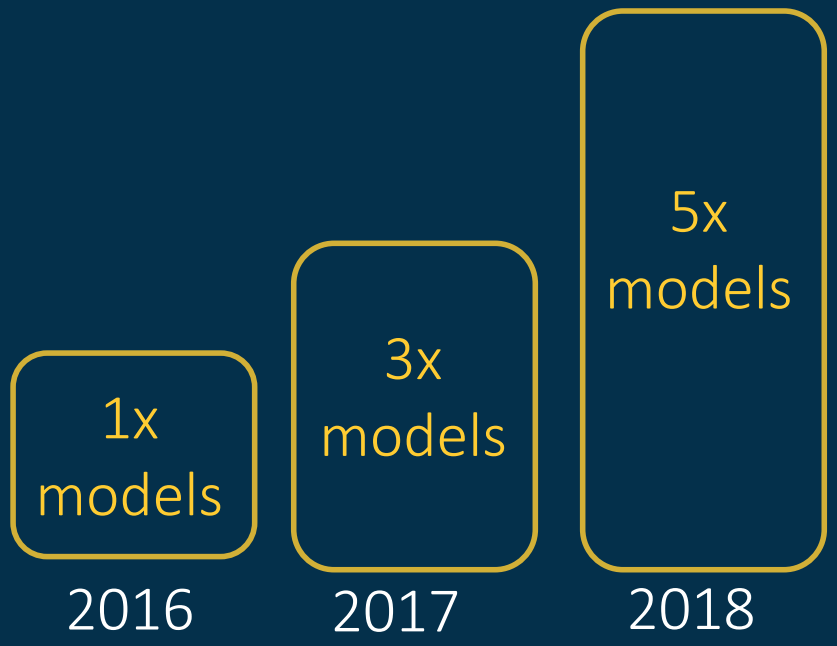
Results

Case Study: Self Learning and Auto-Deployment of Models

The Approach

Efficiency improvements in model development and deployment lifecycle

A large Brazilian bank with over $400 billion total assets.



- Problem Statement
  - Model development to deployment lifecycle took more than 1 year. This was cut down to 1 day – 1 month.
- Bottom line
  - Machine Learning (>100 algorithms) at scale
  - Considers >80,000 input variables
  - Enabled the self-learning and self-deployment of models
  - **Saving $400 million/year on credit losses**

Case Study: Smart Credit Risk Decisioning

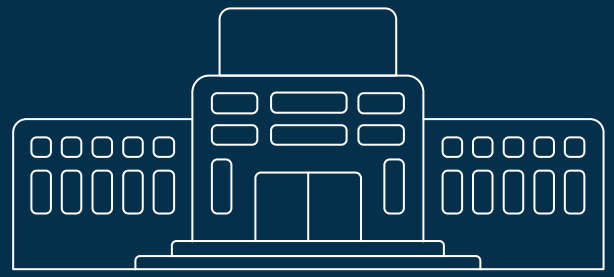
The Approach

Automate online home loan decisioning process using AI/ML

A medium-sized bank that provides financial services to people and businesses including insurance, mortgages, loans and credit cards.

- Looked for ways to automate online home loan decisioning process using AI/ML.
- Using the SAS Viya platform and open source, AI/ML enabled new modes of engaging with customers for automated credit risk decisioning

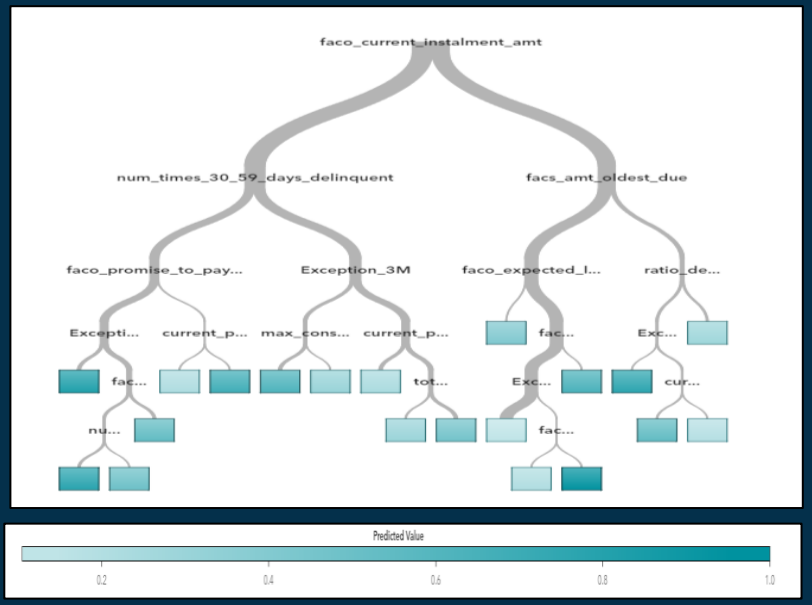
Case Study: Next Generation Risk Modeling



A large bank that provides financial services to people and businesses including mortgages, loans and credit cards in Australia.

The Approach

End to End model development and deployment platform on Viya



Bottom line:

- *5% improvement in Gini* using ML and new data sources
- Processes that used to take hours are done in minutes
- Monthly scoring to daily scoring
- Improved customer service using granular transactional modeling
- *11-23% improvement in Collections & Recoveries*

Widoki na AI z perspektywy rynku

80.5%

Odsetek wykorzystujących AI, którzy potwierdzili korzyści z AI

AI Technology	Currently Use	Plan to Use
Forecasting	54%	33%
Optimization	51%	36%
Machine learning	34%	46%
Robotic process automation	29%	37%
Natural language processing	23%	43%
Virtual agents	22%	35%

Największe korzyści oczekiwane z AI w ciągu 3 najbliższych lat

78%	77%	77%	73%	66%	66%
Faster insight from data	Reduced manual tasks	Improved decision-making	Higher productivity	Lower operating costs	Product quality/ customer experience

Total responding “significant” or “major” benefit

https://www.sas.com/en/whitepapers/artificial-intelligence-banking-risk-management-110277.html

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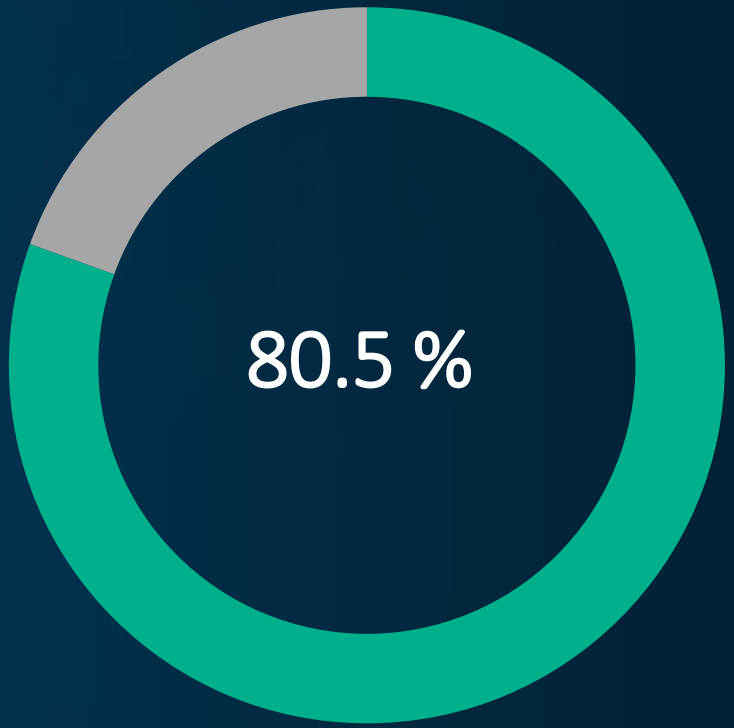
Wartość/korzyści z AI

Respondenci zidentyfikowali dwie główne korzyści:

- **Automatyzacja procesów**
  - Efektywność
  - Redukcja kosztów
  - Ograniczenie ryzyka błędów ludzkich

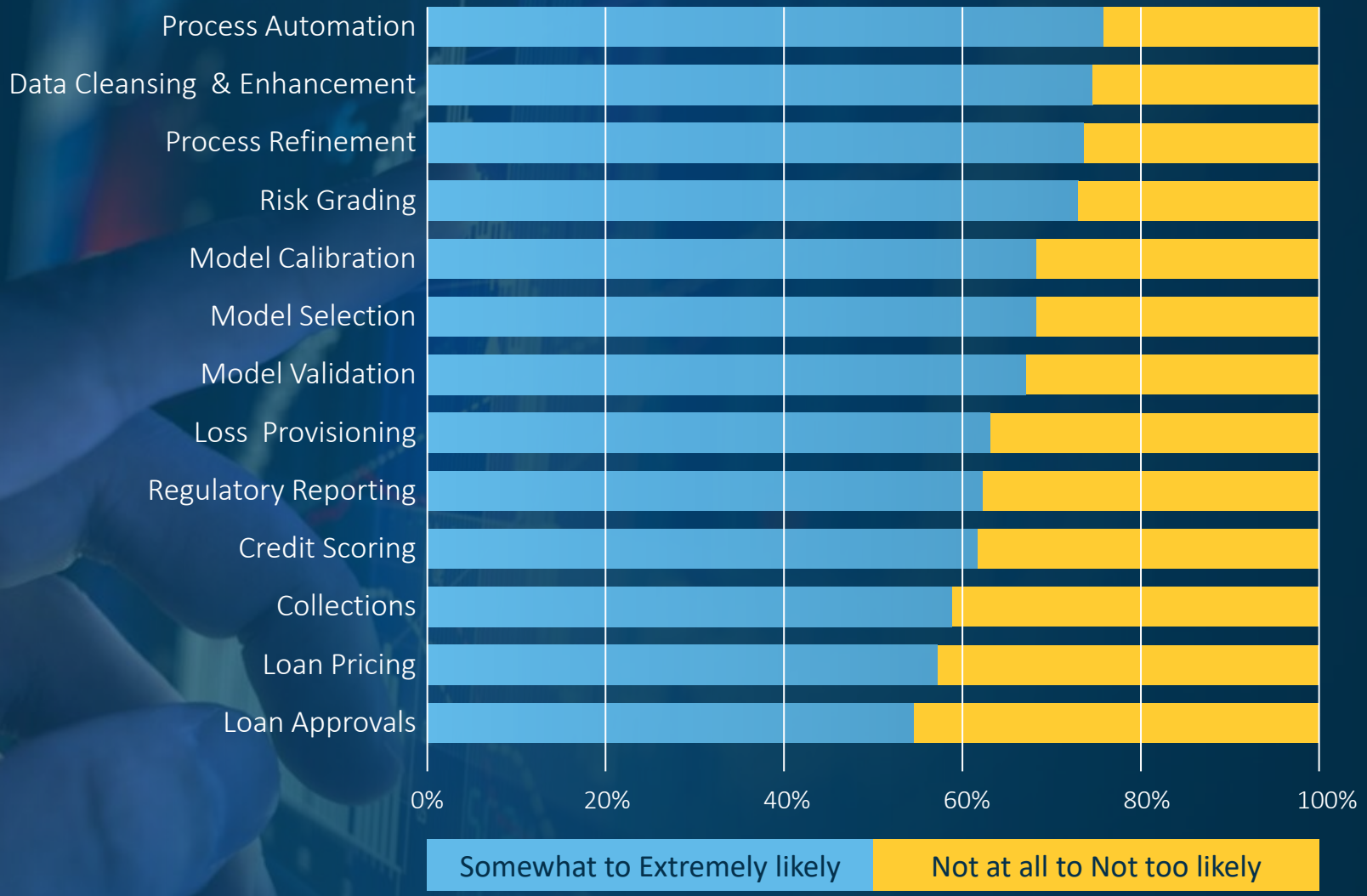
- **Wykorzystanie zaawansowanej analityki**
  - Dostęp do danych: większe wolumeny i szybkość analiz, dane nieustrukturyzowane, tekst, obraz, dźwięk
  - Zwiększona dokładność modeli
  - Szybsze wykonanie modelu – krótszy time-to-market



Odsetek wykorzystujących AI, którzy potwierdzili korzyści z AI

Source: SAS and GARP: The role of artificial intelligence in risk management survey

Wykorzystanie AI w Ryzyku – perspektywa 3 lat



Największe wyzwania

- **59%** Data availability and quality
- **54%** Stakeholders' lack of under-standing
- **52%** Lack of necessary skills
- **50%** Time to realize benefits
- **49%** Cost to implement
- **47%** Interpretability of model

Source: SAS and GARP: Artificial intelligence in banking and risk management survey

GARP sas

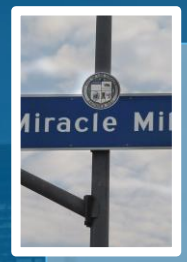
Wnioski i konkluzje

Key take-aways

Samo AI nie wystarczy...

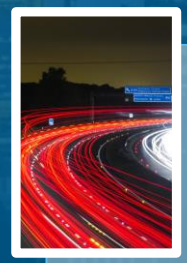
Key take-aways

Wykorzystajmy AI w celach strategicznych – pomysł!

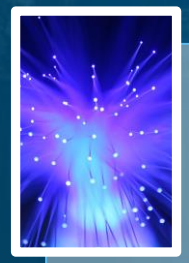


Nie oczekujmy cudów!

Szukamy procesów biznesowych przynoszących zysk ale sprawdzonych i bogatych w dane



Infrastruktura, integracja, komunikacja, Governance

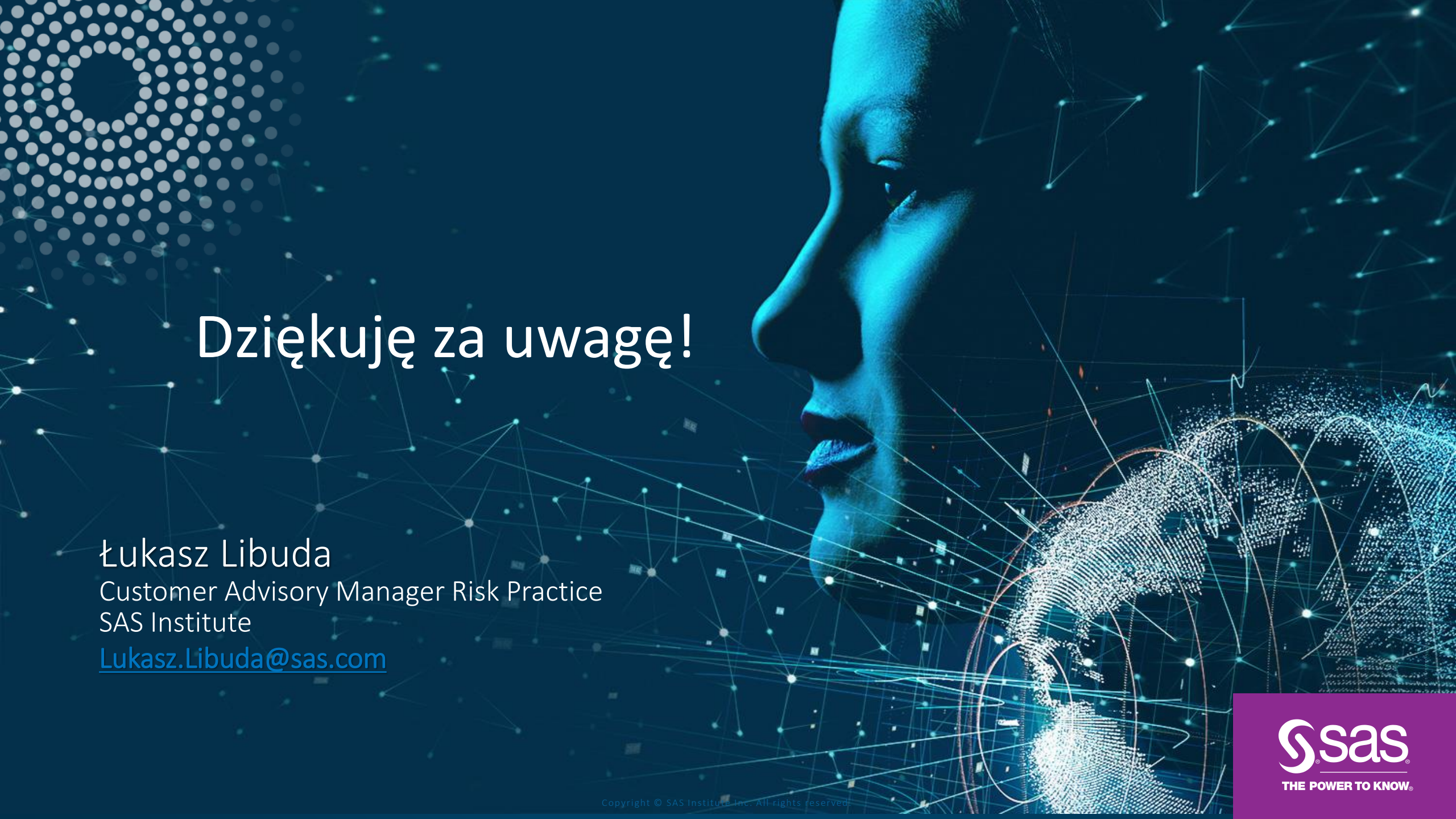


Działajmy szybko bo rynek działa szybko

Operacjonalizacja AI/ML

Zaangażujmy regulatorów

Wykorzystajmy falę AI….



Dziękuję za uwagę!

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Lukasz.Libuda@sas.com

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