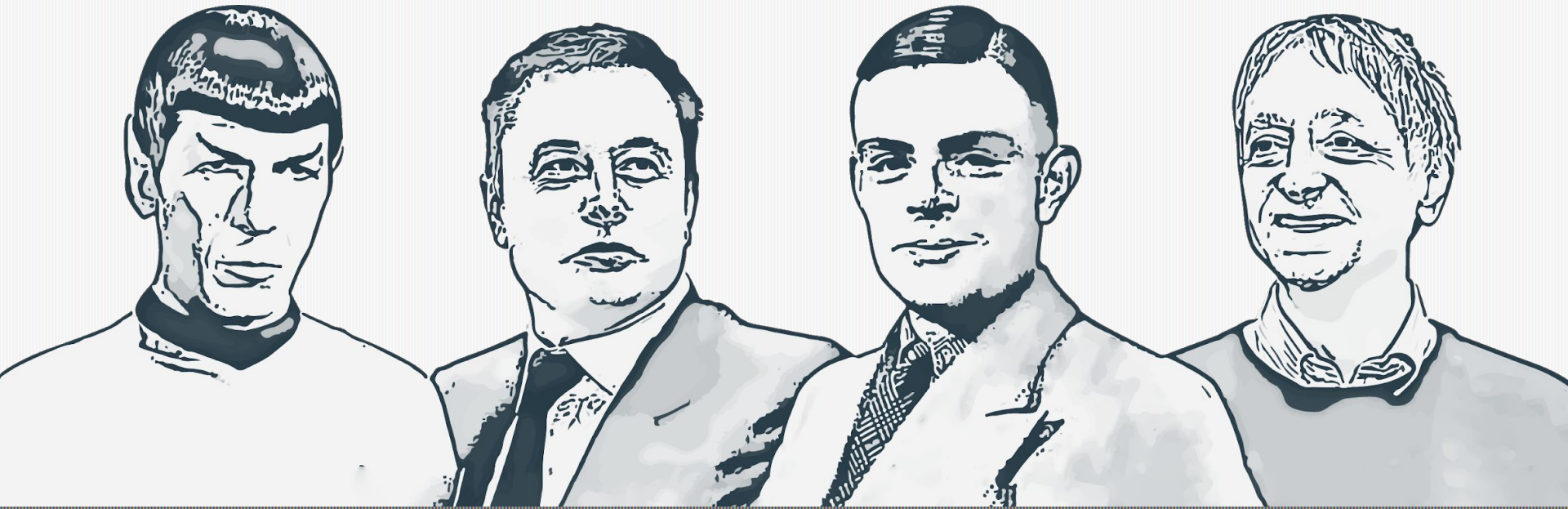
CODETE

Explainable AI in hospitality



Karol Przystalski

About

Overview

2015 - obtained a Ph.D. in Computer Science @ Jagiellonian University

2010 until now - CTO @ **Codete**

2007 - 2009 - Software Engineer @ IBM

Recent research papers

Multispectral skin patterns analysis using fractal methods}, K. Przystalski and M. J.Ogorzalek. Expert Systems with Applications, 2017

https://www.sciencedirect.com/science/article/pii/S0957417417304803

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AI IS THE NEW UI

AI IS THE NEW ELECTRICITY

Buzzwords

Machine learning became a buzzword a few years ago. Like deep learning, blockchain or data science, each buzzword is often used by startup to show the innovative approach.

There are many projects/challenges where machine learning shouldn't be the solution or at least shouldn't be the first choice.

AI hype

> Forty percent of “AI startups” in Europe don’t actually use AI

40%

The State of AI 2019: Divergence

AI hype

> Startups labelled as being in AI attract 15% to 50% more funding than other technology firms.

15-50%

The State of AI 2019: Divergence

AI hype

> Based on the recent Gartner research, 85% of AI projects fails.

85%

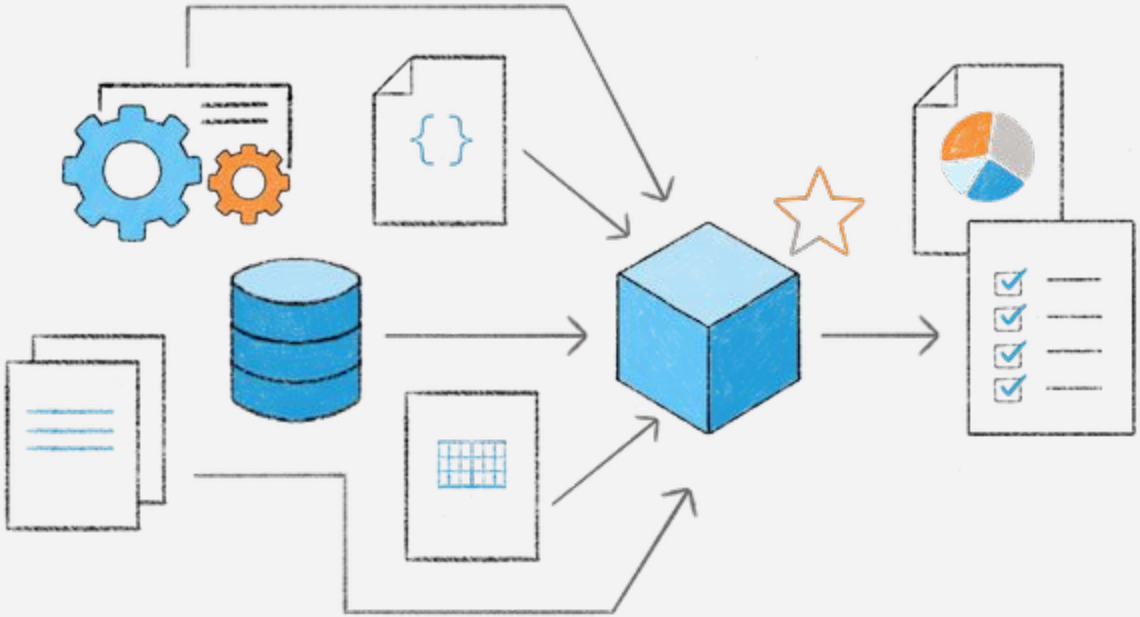
Gartner

Where should ML be used in hospitality?

ML popular use case in hospitality:

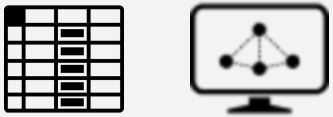
- Chatbots
- Automated check-in/check-out
- Maintanence efficiency
- Supply chain
- Fare prediction
- Recommendation systems
- Security
- Reviews analysis
- Personalization
- Intelligent hotel rooms
- Customer trends prediction

Data



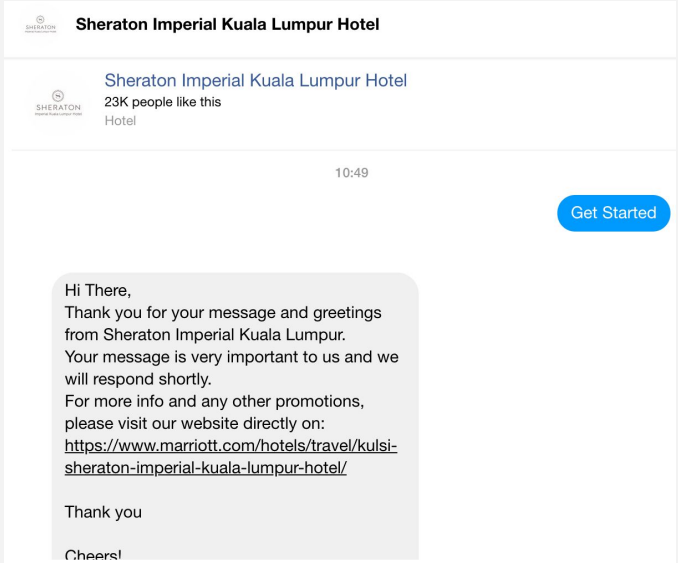
Data

Structured



Unstructured

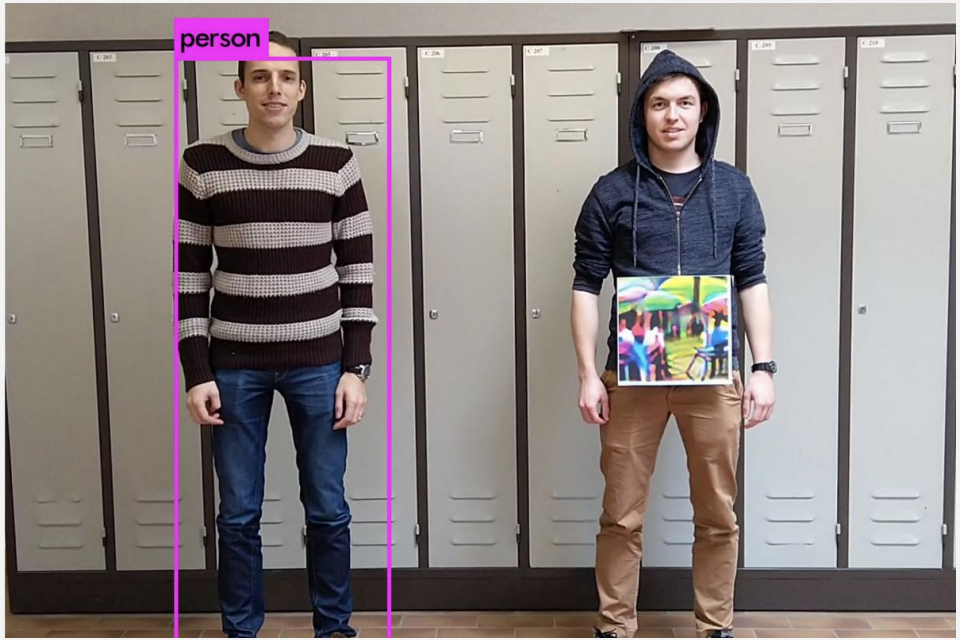
Use cases: Chatbots and Reviews analysis



Use cases: Chatbots and Reviews analysis

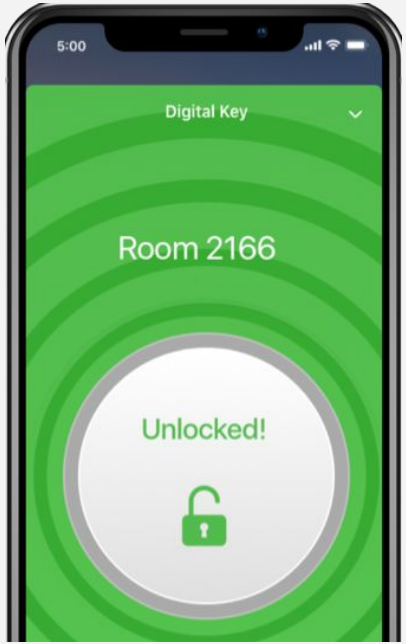
Use cases: Automated check-in/check-out and Security

Use cases: Automated check-in/check-out and Security

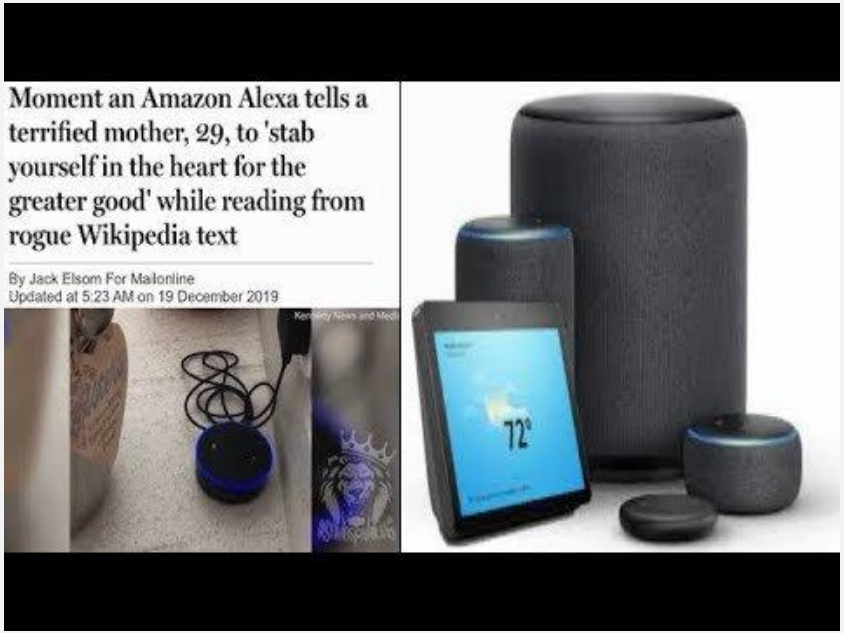


Use cases: Fare prediction

Use cases: Intelligent hotel rooms



Use cases: Intelligent hotel rooms



What is XAI?

Explainable AI can be

- Understandability
- Comprehensibility
- Interpretability
- Transparency

XAI Goals

There are several goals of XAI:

- Trustworthiness
- Causality
- Transferability
- Informativeness
- Confidence
- Fairness
- Accessibility
- Interactivity
- Privacy awareness

Why use XAI?

We use XAI for:

- domain experts,
- regulatory agencies,
- managers, executive board members,
- data scientists,
- users affected by model decisions.

How to explain?

We use XAI for:

- Text explanation
- Visual explanation
- Local explanation
- Explanations by example
- Explanations by simplification
- Feature relevance explanation

White vs. black-box ML

Notebook demo

XAI in hospitality

To mention just a few cases:

- Understand the way how the chatbots understand the intents and replies
- Be able to explain how automated check-in/check-out works under the hood
- Report the numbers of cost efficiency improvements since ML was introduce it and understand why the efficiencies were achieved
- Explain the logic behind the fare prediction
- Be able to test and debug the intelligent hotel rooms

More

Find my online trainings at: learning.oreilly.com

Learn more tomorrow:

XAI explained workshop 5.02 9:30 Berlin, Kreuzberg

AI for managers workshop 5.02 14:00 Berlin, Kreuzberg

Q&A