

Big Data & Machine Learning Workshop

Design of Machine Learning Models
in Python for Financial Crime Risk

*Krakov Summer Quantitative Bootcamp.
7-10 July, Jagiellonian University, Krakow, Poland*

Anna Pastwa, PhD

*The views and opinions expressed in this presentation are the author's personal opinion.
They do not necessarily reflect the views of her current or past employers.*

Your instructor:



Anna Pastwa, PhD


Data Scientist, Assistant Vice President at Risk & Compliance Analytics

Financial Crime Threat Mitigation, Dynamic Risk Assessment

Research interests:

- Machine learning for financial crime risk assessment
- Economics of AI
- FinTech

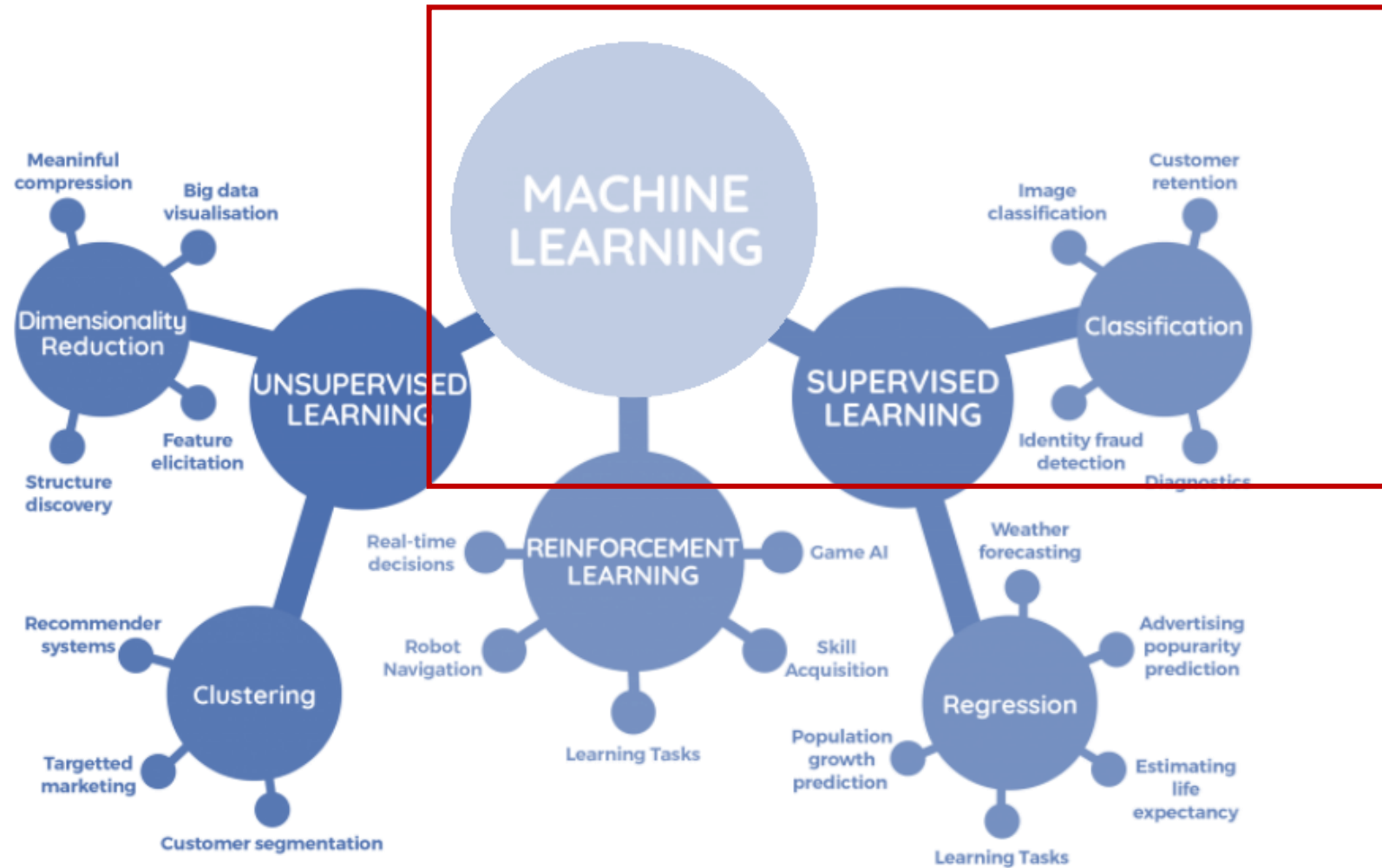
Workshop outline: 2h

1. **Getting started (5 minutes)** 
2. **Setting the context: financial crime detection scale and complexity – theoretical introduction (15 minutes)**
3. **Hands-on workshop in Google Colab**
 - **Lab part 1: Data preparation: (25 min)**
 - reading in,
 - preprocessing,
 - targets and features
 - **Lab part 2: Building the model: supervised learning (25 min)**
 - Choice of model: imbalanced class problem
 - Train-test split, hyperparameter tuning
 - **Lab part 3: Model evaluation and explainability (25 min)**
 - Choice of eval metrics
 - Model explainability
4. **Modelling challenges and considerations – theoretical introduction (15 min)**
5. **Wrap-up and Q&A (10 min)**

The background of the slide features a complex arrangement of interlocking metal gears in various sizes, creating a sense of mechanical complexity. In the upper right quadrant, a circular compass rose is visible, with its face showing cardinal and intercardinal directions (N, NE, E, SE, S, SW, W, NW) and degree markings. The compass rose has a golden-brown hue, contrasting with the dark, metallic tones of the gears.

Setting the context

Financial Crime Risk



The background of the slide features a complex arrangement of interlocking metallic gears of various sizes. In the upper right quadrant, a circular compass rose is integrated into the gear system. The compass has a gold-colored face with black markings for cardinal and ordinal directions (N, NE, E, SE, S, SW, W, NW) and a degree scale around its perimeter. The hands of the compass are also gold. The overall aesthetic is industrial and mechanical.

Let's get hand-on!

Google Colab workshop:

<https://tinyurl.com/ksqb22ml>

Q&A

The image features a solid dark blue background. A white, torn paper effect runs horizontally across the lower portion of the frame, creating a jagged, irregular boundary between the dark blue area and a lighter, textured white area below it. The text 'Q&A' is positioned in the upper left quadrant of the dark blue area.

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