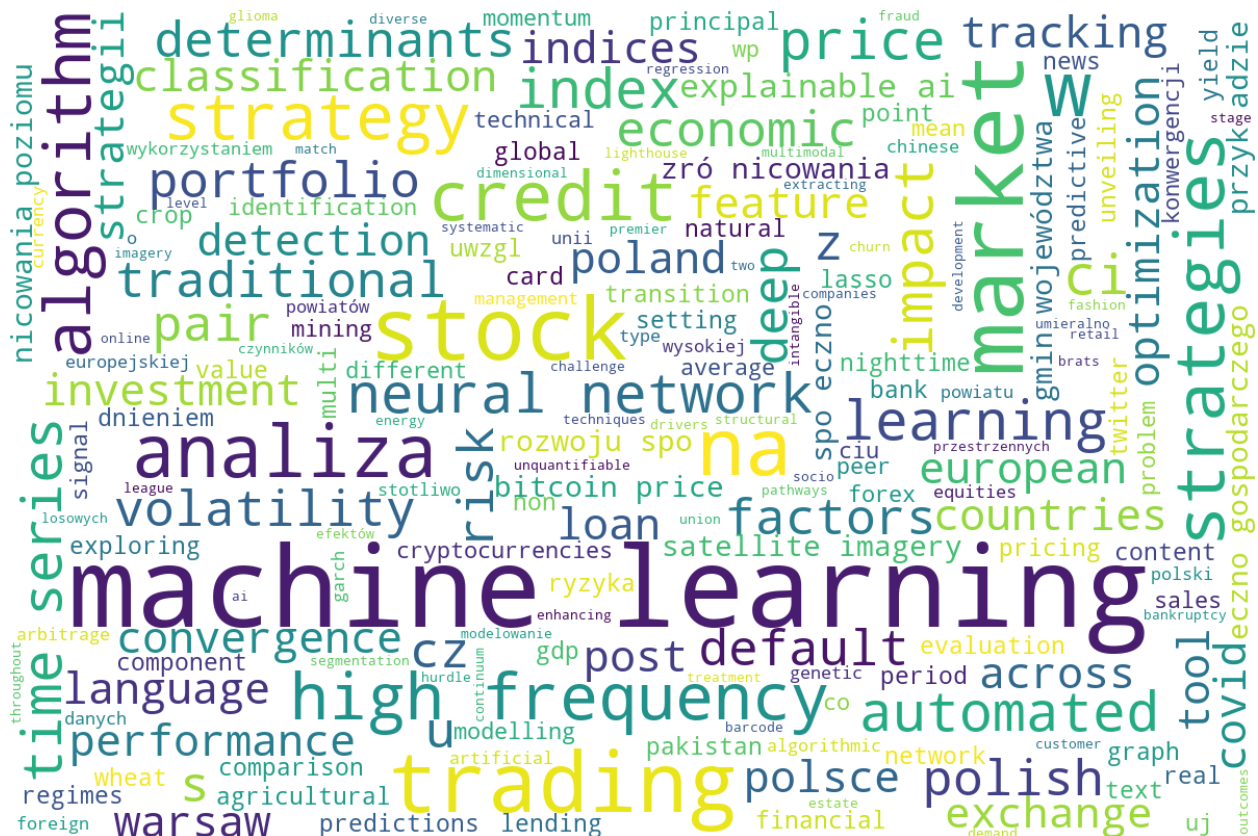


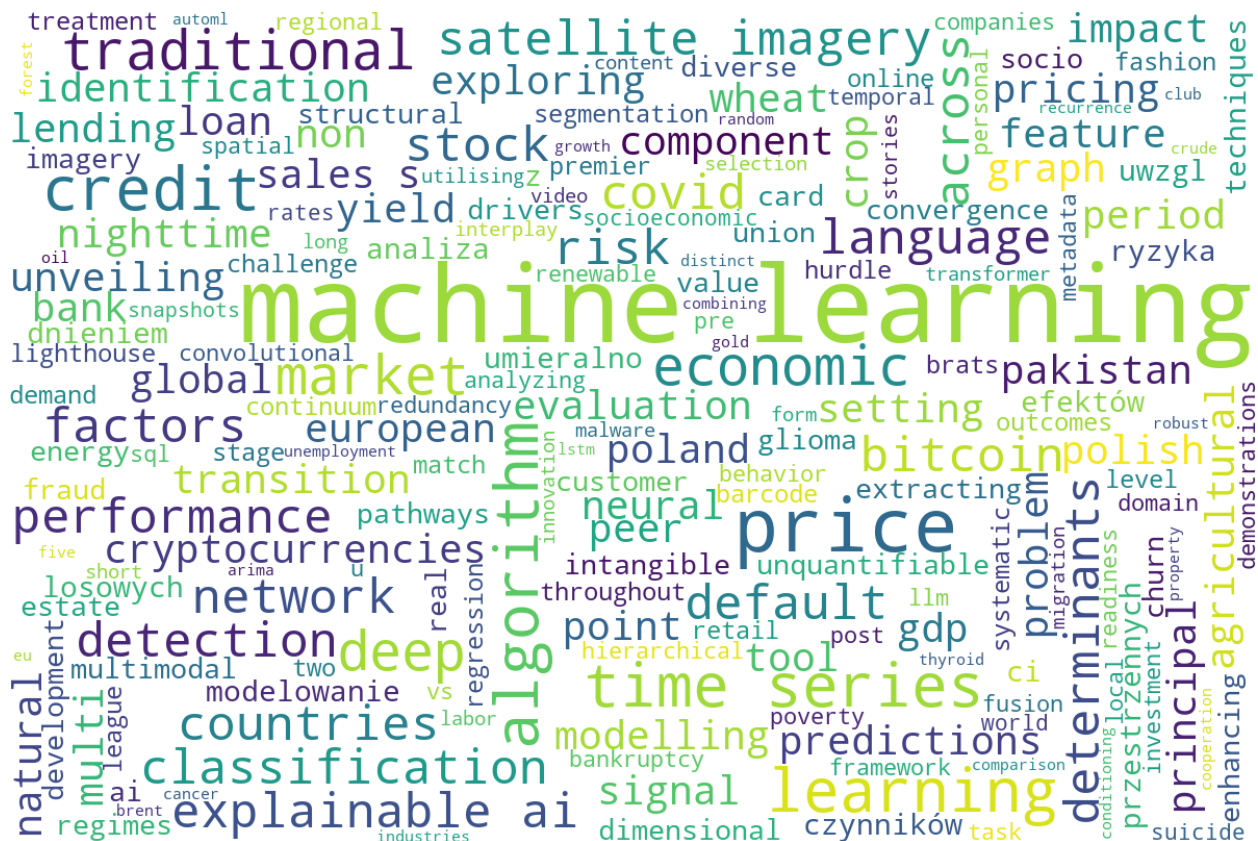
Topics of master theses prepared under my supervision and successfully defended

(by year of defense)

Wordcloud based on a **full list** of topics



Wordcloud based on a list of topics from **last 5 years**



2026

1. Diverse Pathways of the Energy Transition in the European Union: A Multi-Dimensional Analysis of Structural Drivers and Transition Regimes
2. Modelowanie i analiza czynników ryzyka umieralności z uwzględnieniem przestrzennych efektów losowych
3. Loan Default Prediction Using Machine Learning Techniques
4. Pricing the Unquantifiable: Extracting Intangible Real Estate Value Through Multimodal Deep Learning

2025

1. Agricultural Wheat Crop Yield Prediction in Pakistan Using Machine Learning
2. Enhancing Credit Card Fraud Detection
3. Unveiling Economic Convergence Factors with Machine Learning and Explainable AI
4. Predicting Socio-Economic Development in Poland in 2020–2024 Based on Satellite Imagery
5. Bank Customer Churn Prediction
6. Glioma Segmentation Throughout the Treatment Continuum: A Systematic Evaluation of Deep Learning Models for the BraTS 2025 Lighthouse Challenge
7. Agricultural Wheat Crop Yield Prediction in Pakistan Using Machine Learning
8. Machine Learning for Barcode-Level Demand Forecasting in Online Fashion Retail: A Two-Stage Hurdle Model Approach
9. Predicting Premier League Match Outcomes with machine learning – Application of Classification and Regression Methods
10. Bankruptcy Risk Prediction for Polish Companies: Traditional and Machine Learning Models Across Pre - and Post - COVID Periods (2015–2023)
11. A Spatial Graph Convolutional Neural Network Framework for Poverty Prediction
12. ANALYZING STOCK MARKET BEHAVIOR AND PRICE PREDICTIONS ACROSS GLOBAL MARKETS
13. Impact of Local vs. Global Models in Temporal Hierarchical Time Series Forecasting
14. LLM-based Natural Language to SQL: out-of-domain demonstrations, metadata redundancy and task evaluation problems
15. Regional Renewable Readiness and Investment Forecasting in the U.S.: A Machine Learning Approach
16. Application of Machine Learning Feature Fusion Model in Predicting Personal Credit Defaults

2024

1. The Analysis of Socioeconomic Factors on Suicide rates in world countries
2. Snapshots of Stories: Utilising Transformer Networks for Short Video Selection from Long-form Content
3. Predicting malware with machine learning
4. Exploring the Interplay Between Innovation, Labor Migration, Unemployment and Economic Growth in EU Countries
5. Predicting recurrence of thyroid cancer with machine learning
6. Combining Explainable AI and AutoML for Robust Credit Default Prediction: A Lending Club Loans Case Study
7. Comparison between traditional time series models and machine learning models for predicting Brent Crude Oil, Gold and Bitcoin prices
8. Predicting stock prices across five distinct industries using ARIMA, LSTM, and random forest models during the COVID-19 period
9. Conditioning cooperation with property rights in Multi-agent Reinforcement Learning tragedy of the commons setting
10. Measuring safety of retrieval-based AI-generated text detection algorithm in multilingual environment
11. Evaluating the Financial Performance of 43 Banks Through Principal Component Analysis

2023

1. House prices in Türkiye and their determinants in 2010-2023
2. Mechanism of Action (MoA) prediction: exploring dimensionality reduction as a feature generation tool

3. Zastosowanie uczenia maszynowego w ubezpieczeniach komunikacyjnych – wznawialność klientów indywidualnych
4. Beyond Yelp: Unveiling the Determinants of Restaurant Survival using Google Maps data
5. Economic Nowcasting Sweden's Monthly GDP change with Nighttime Satellite Imagery
6. Non-invasive Brain-Computer Interface: Motor imagery classification of EEG-based signals
7. Sparse Tracking of Stock Indices with Principal Component Analysis and LASSO
8. What are the odds? Point-based approach to Plusliga volleyball matches result predictions
9. Prompt Tuning by Context Template Pool Optimisation for Vision-Language Model
10. Satellite imagery and deep learning in prediction of GDP for European countries
11. Should You Care about Tools in Fake News Detection? A Comparative Study of Cutting-Edge Embedding Methods and Classification Algorithms
12. Predicting Bitcoin price fluctuation with Twitter sentiment analysis
13. Predicting Wealth of Polish Regions Using Nighttime Lights
14. Resistance of predictive performance of machine learning algorithms to drifts in time series data on the example of food delivery market
15. Predicting cryptocurrencies' prices with traditional time series models and Machine Learning algorithms
16. Predicting cryptocurrencies' prices with traditional time series models and Machine Learning algorithms
17. Modelling Subjective Attractiveness

2022

1. Predicting Bitcoin prices and identification of their determinants
2. Applying Deep Learning for Natural Language Processing
3. Human activity recognition using machine learning models based on smartwatches data
4. Predicting life expectancy with machine learning
5. What makes Punks worthy? Valuation of Non-Fungible Tokens based on the CryptoPunks collection using the hedonic pricing method.
6. Investigating Performance of Graph Neural Networks with Various Parameters on Traffic Signal Settings Optimization Problem
7. Credit risk modelling in peer-to-peer lending with application of explainable AI

2021

1. Sales prediction accuracy for different frequencies of data
2. The Impact of COVID-19 Pandemic on a Portfolio of an Average Investor
3. Forecasting Walmart daily sales
4. Application of Machine Learning methods in Credit Risk Modeling
5. Forecasting optimal trading points in FOREX markets using technical analysis and machine learning
6. What factors determine uneven suburbanization? New evidence from Warsaw, Poland
7. Identification of scams in Initial Coin Offerings with machine learning

2020

1. Mean-reverting versus momentum strategy in FOREX market using volatility breakout models
2. Determinants of deaths due to Acute Coronary Syndrome in Poland
3. Impact of social media news on stock market index
4. The impact of the content of Federal Open Market Committee post-meeting statements on financial markets – text mining approach
5. Application of machine learning models for automated investment strategy in consumer loans
6. Predicting well-being based on features visible from space – the case of Warsaw
7. Patterns of absolute convergence. The analysis for the Ecuadorian cantons and provinces 2007-2018
8. We have just explained real convergence factors using machine learning
9. Predicting credit card fraudulent transactions on unbalanced data using machine learning

2019

1. Predicting home credit default risk with machine learning tools

2018

1. Determinanty współczynnika urodzeń w Polsce w ujęciu lokalnym
2. Wzorzec konwergencji bezrobocia w ujęciu stochastycznym – Polska 2004-2016
3. Co wpływa na frekwencję wyborczą ? Analiza z wykorzystaniem metod ekonometrii przestrzennej
4. Pierwsza dekada w Unii Europejskiej – sukces czy porażka nowych państw członkowskich?

2017

1. Portfolio Management: Investing in Fixed and Variable Assets
2. Can Twitter Predict Stock Returns?
3. Index Tracking with Post Constrained LASSO. Applications to Warsaw Stock Exchange indexes
4. Index tracking using genetic algorithms
5. Application of neural networks in algorithmic trading
6. Predicting Chinese stock market with Artificial Neural Networks and hybrid models
7. Automated pairs trading on S&P500 stocks using volatility switching regimes

2016

1. Wykorzystanie analizy falkowej w automatycznej strategii inwestycyjnej na danych o wysokiej częstotliwości
2. Reakcja polskich konsumentów na kryzys. Wydatki konsumpcyjne gospodarstw domowych w latach 2007–2009
3. Optimization of the portfolio of Polish stocks using the Black-Litterman model
4. Investment strategy optimization with the use of genetic algorithms. The analysis for Chinese stock market
5. Credit scoring jako metoda oceny ryzyka kredytowego osób fizycznych z wykorzystaniem technik data mining
6. Atrakcyjności lokalizacji a wycena lokalu mieszkalnego na przykładzie warszawskiego wtórnego rynku mieszkaniowego
7. Event Arbitrage Strategies. The impact of the U.S. markets opening on European stock indices
8. Dojazdy do pracy a konwergencja regionalna w Polsce
9. Construction of volatility index for China CSI300 stock index by using GARCH-type models
10. Microstructure of the foreign exchange market and its effects in intraday volatility
11. Analiza zróżnicowania poziomu rozwoju społeczno-gospodarczego powiatów i gmin województwa małopolskiego ze szczególnym uwzględnieniem powiatu gorlickiego
12. Application of breadth indicators in automated trading strategies

2015

1. Fundusze strukturalne a rozwój lokalny na przykładzie gmin województwa wielkopolskiego i podkarpackiego
2. Application of artificial neural networks in high frequency trading
3. Seeking for momentum in US industrial indices – application of automated trading strategies
4. Poziom rozwoju społeczno-gospodarczego powiatu opoczyńskiego na tle powiatów Polski – analiza porównawcza
5. Wpływ atrybutów mieszkania na jego cenę ofertową na przykładzie ogłoszeń z serwisu dom.gratka.pl
6. CO-INTEGRATION IN PAIR TRADING STRATEGIES. Application to high-frequency data on American equities
7. Commodity-currency trading. Empirical strategies on high-frequency data

2014

1. Analiza przestrzenna polaryzacji i dyfuzji rozwoju regionalnego Polski
2. Prognozowanie liczby pierwszych obciążeń zwrotnych
3. Using a Bayesian Network to Boost a Trading Strategy: evidence from EURUSD currency pair
4. Analiza konwergencji regionalnej w Polsce i Hiszpanii
5. Portfolio Management based on Statistical Arbitrage Strategy

6. Comparison of predictive abilities of Extreme Value Theory and AR-GARCH approaches in VaR forecasting. Application to Polish stock market
7. Is technical analysis still alive? Application of selected methods in an automated trading strategy

2013

1. Pairs trading strategies on US equities. Sectoral high-frequency data approach
2. Trend following or mean-reversion? Analysis for – Foreign Exchange Market using high frequency data
3. Analiza zróżnicowania poziomu rozwoju społeczno-gospodarczego gmin województwa mazowieckiego
4. Analiza zróżnicowania poziomu życia w regionach Unii Europejskiej
5. Trading strategy for futures contracts based on Hurst exponent
6. Analysis of High Frequency strategies based on different types of moving averages
7. Profitability of algorithmic strategies applied on high-frequency data