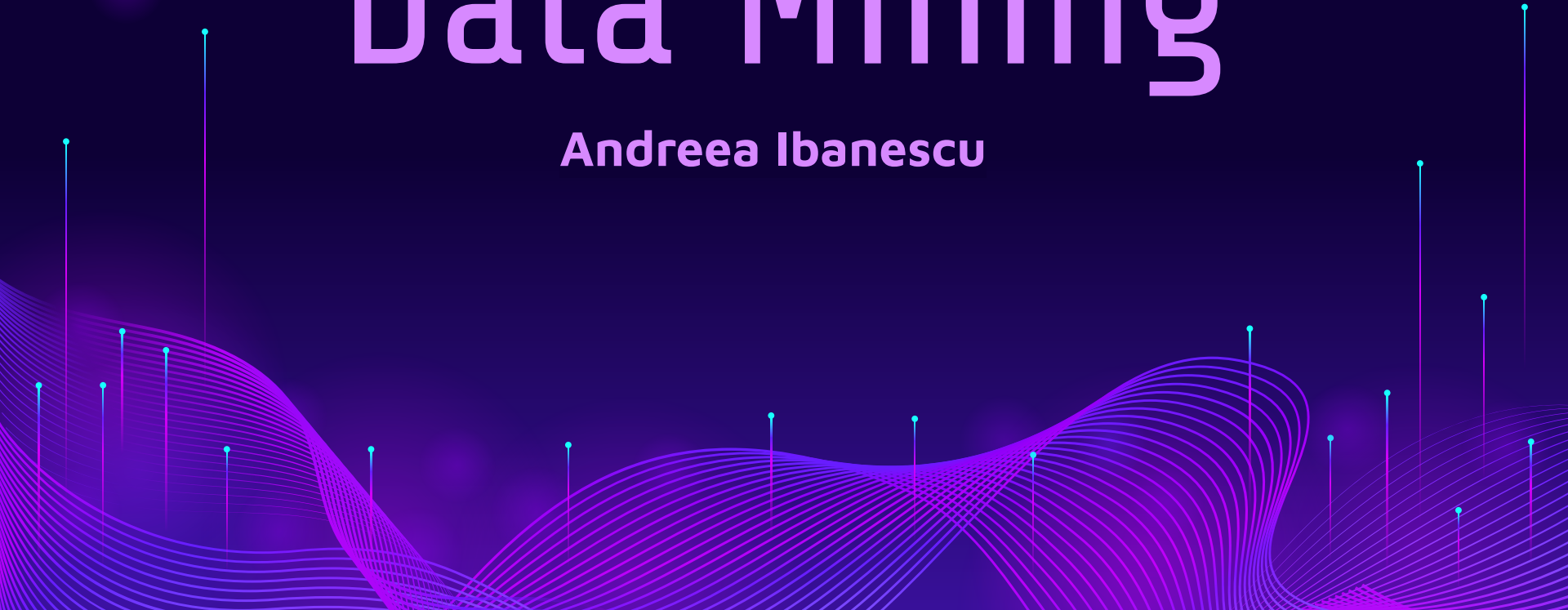


Data Mining

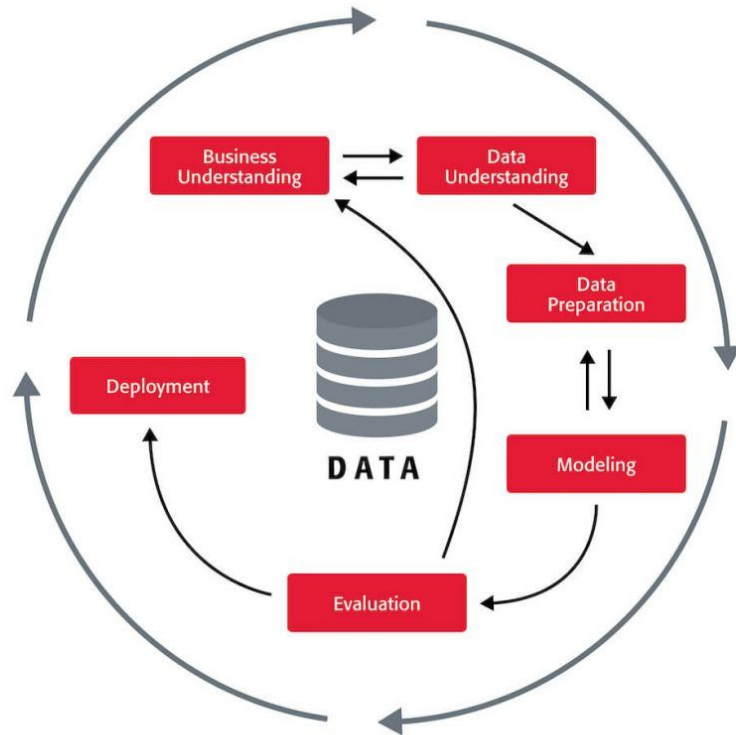
Andreea Ibanescu



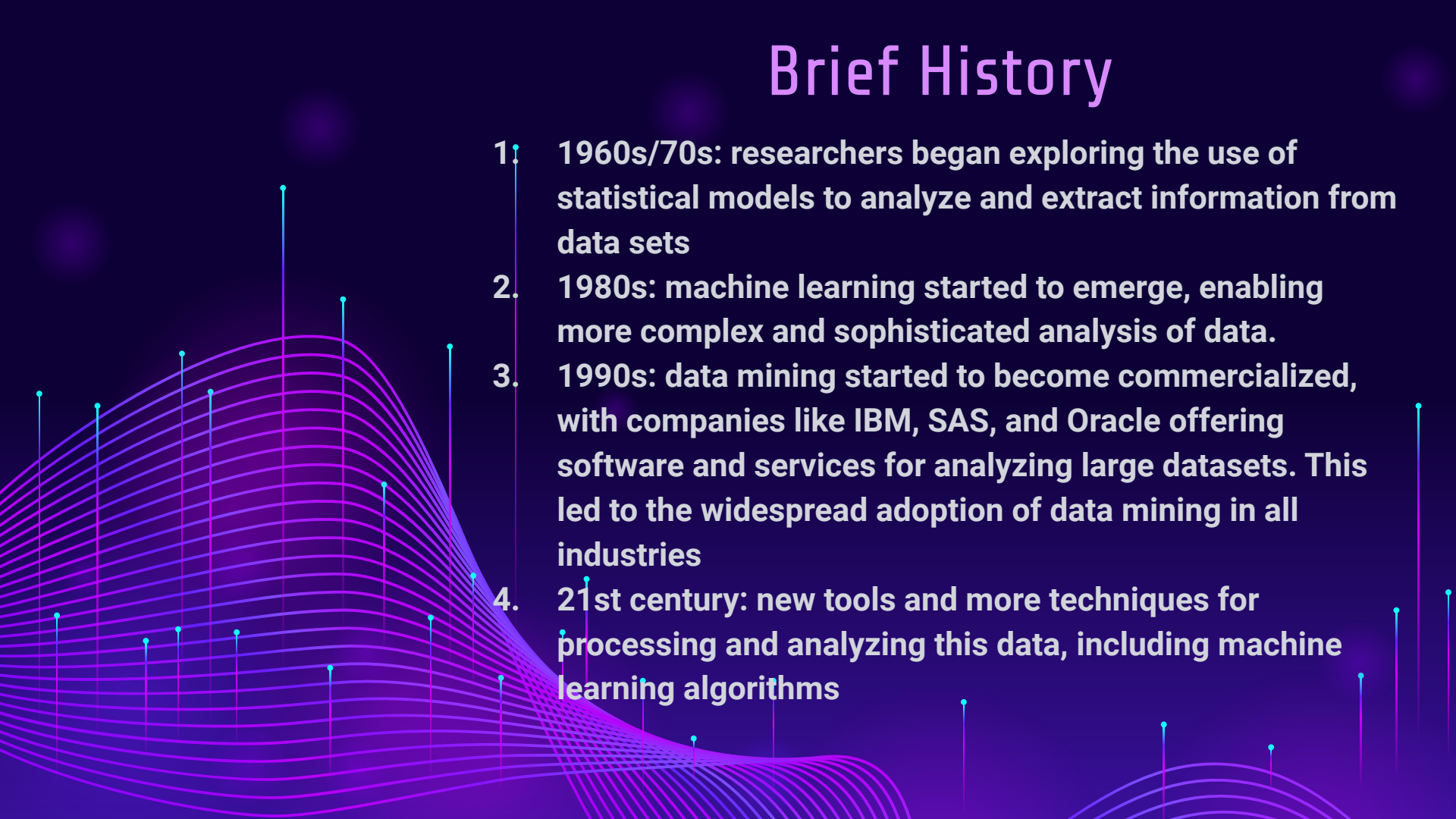
A process..

Extracting useful information from datasets. It involves **analyzing data from various perspectives and discovering patterns, correlations, and trends** that are not immediately apparent. The goal is to extract valuable knowledge and insights that can be **used for decision-making and predictions** efficiently





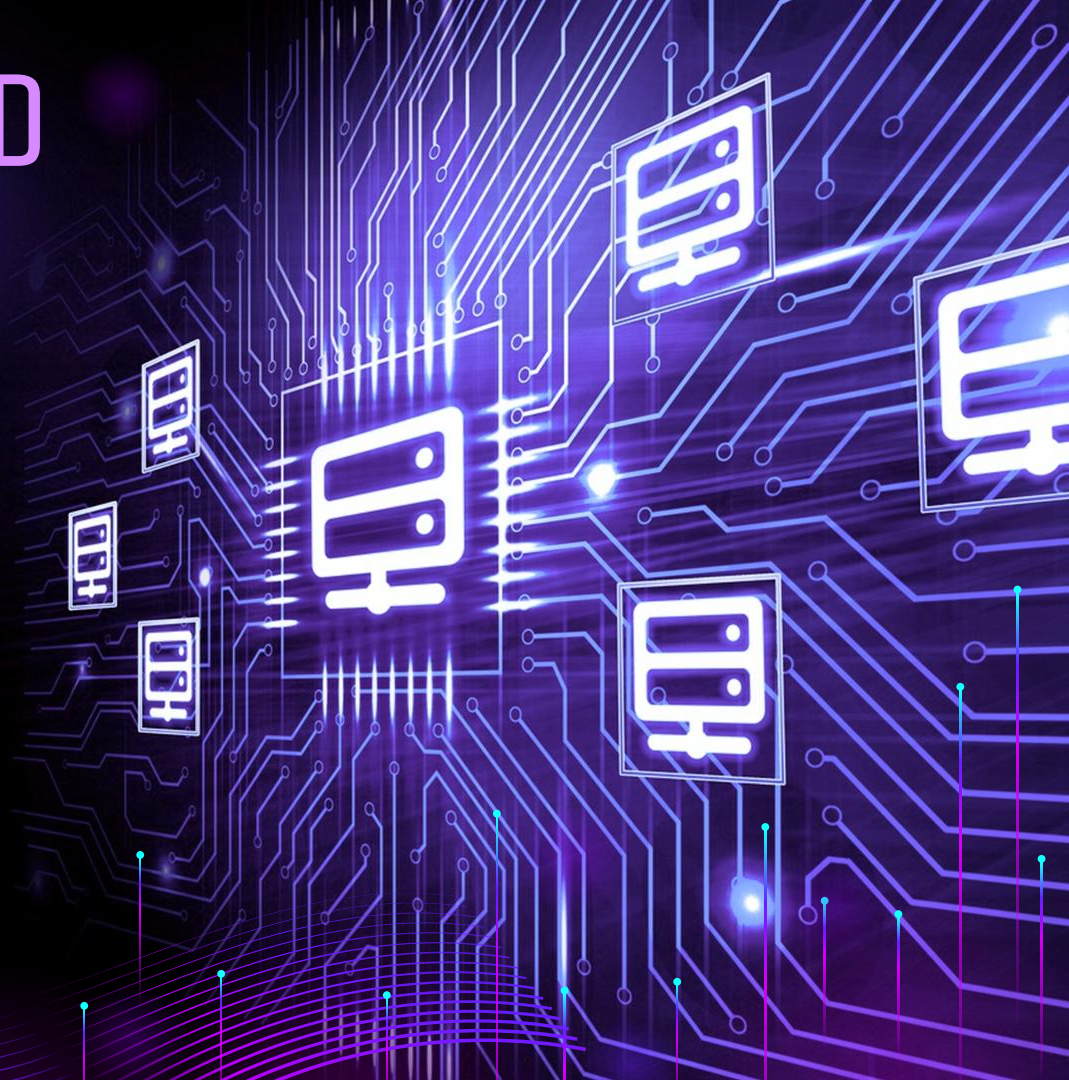
Brief History

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1. **1960s/70s:** researchers began exploring the use of statistical models to analyze and extract information from data sets
 2. **1980s:** machine learning started to emerge, enabling more complex and sophisticated analysis of data.
 3. **1990s:** data mining started to become commercialized, with companies like IBM, SAS, and Oracle offering software and services for analyzing large datasets. This led to the widespread adoption of data mining in all industries
 4. **21st century:** new tools and more techniques for processing and analyzing this data, including machine learning algorithms

IMPORTANCE

1. **Insights:** extract valuable info efficiently from large & complex datasets that may otherwise be difficult to interpret, inform business decisions and lead to increased efficiency and profitability.
2. **Prediction:** used to make predictions like consumer behavior or market trends, it helps organizations prepare for potential challenges
3. **Optimization:** by identifying patterns, so that organizations can improve resource allocation; leading to increased efficiency and cost savings
4. **Personalization:** enabling personalized marketing and product recommendations, by tailoring their offerings to individuals

SOFTWARE USED



Data Mining vs Machine Learning

are complementary methods that can be used together to extract insights and build predictive models from data, but are different:

1. Data mining typically involves exploratory analysis of large datasets using statistical and visualization techniques, while machine learning **involves training algorithms** on data to make predictions or decisions
2. Data requirements: Data mining can be applied to both structured and unstructured data, while machine learning typically requires structured data that has been labeled or categorized
3. Algorithmic complexity: Data mining algorithms are often simpler and more interpretable than machine learning algorithms, which can be highly complex and difficult to interpret.

THANK YOU

The background features a dark blue gradient. On the right side, there are large, flowing, wavy lines in shades of purple and blue. Scattered across the lower half of the image are numerous vertical lines of varying heights, each topped with a small, glowing dot in a light blue or purple hue. A faint, dark rectangular shape is visible in the lower-left quadrant.