

# **From Alan Turing to MATLAB Today**

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## **ABSTRACT**

First, we will introduce from Alan Turing to MathWorks connection, Enigma machine App, genesis of MATLAB. MATLAB is historical tied with numerical analysis society. Now it's beyond as technical computing language. Second, we will introduce recent MATLAB data analytics success story.

# Unlocking the Power of Machine Learning

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## ABSTRACT

Machine learning is driving innovation in many application areas, including predictive maintenance, digital health and patient monitoring, financial portfolio forecasting, and advanced driver assistance. Developing machine learning models and deploying them on embedded systems or cloud infrastructure often still requires significant expertise with signal processing, big data, and model optimization.

In the context of obtaining insights from real world data, this talk addresses how MATLAB® empowers engineers and scientists without significant signal processing and machine learning expertise to tackle challenges like:

- Importing, visualizing, and preprocessing time-series and other data
- Detecting and extracting features in time, frequency, and time-frequency domains from signals
- Exploring advanced signal processing and transfer learning techniques for time-series classification
- Evaluating multiple models and working with large amounts of data
- Optimizing performance, including hyperparameter tuning
- Deploying models in production IT systems or on embedded devices

# Classifying Trading Signals using Machine Learning and Deep Learning

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## ABSTRACT

In this session, we will show how to apply machine learning and deep learning algorithms to classify trading signals into “buy” or “sell”. Using the stock index data, we will show how to create simple workflows for training machine learning and deep learning models. Based on the trained models, we will perform backtesting on in-sample and out-of-sample data.

### Highlights

Data Preprocessing, factor creation and data partitioning

Rule-based trading

Classifying trading signals using Classification Learner App

Classifying trading signals using LSTM(deep learning algorithm)