



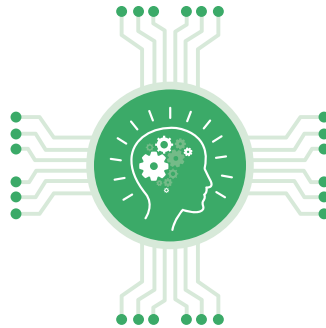
Solving What Matters

# AI and ML Solutions

Solving complex business problems for groundbreaking results

Make your **products smarter**, **customer experiences frictionless**, **processes autonomous** and businesses safer **by detecting risks, threats and anomalies** using cutting-edge machine learning.

## MACHINE LEARNING CAPABILITIES



Our award-winning work achieves transformative results for clients by deciphering data in surprisingly human ways: through sight, sound, speech, natural language and pattern recognition.



### LANGUAGE

- Content Extraction
- Content Classification
- Content Summarization
- Content Generation
- Content Grading
- Keyword Analysis
- Language Translation
- Knowledge Graphs
- Question Answering
- Intent Identification

### SIGHT

#### VIDEO

- Video Meta Tagging
- Scene Segmentation
- Video Alignment
- NSFW Detection
- Surveillance Assistance
- Suspicious Behavior
- Tracking

#### DOCUMENT

- Handwritten Text Extraction
- Entity Recognition
- Classification

#### ACTION

- Action Detection
- Pose Estimation



### IMAGE

- Object Detection
- Defect Detection
- Medical Imaging
- Image Detection
- Image Segmentation
- Image Captioning

### SOUND

- Speech Transcription
- Sound Classification
- Voice Biometrics
- Speaker Diarization
- Speech Synthesis



### PATTERN

- Anomaly Detection
- Fraud Detection
- Time Series Forecasting
- Predictive Maintenance
- Recommendation Engine
- Segmentation Engine
- Propensity Scoring



## REAL WORLD RESULTS: CASE STUDIES



### ENGINE DEFECT DETECTION

A global scale automotive manufacturer wanted to augment their plants' capabilities with a **reliable and scalable quality inspection** solution powered by machine learning models

#### Solution

A custom computer vision model was developed, providing a real-time pass / fail decision for defect detection on the engine casing, using a combination of a localization model to identify the region of interest and a classification model to detect if the region is defective or not

#### Business Impact

- Improved accuracy score from **<50% to 95%**
- Scaled and **expedited the inspection process**
- Significantly reduced manual efforts and inspection time



### SPECIALITY SPEECH RECOGNITION

VOIP providers possess colossal archives of trader voice recordings which must be audited to **monitor trader behavior** for financial trade execution, **compliance and surveillance**

#### Solution

A custom Specialty Speech Recognition (ASR) solution was developed to accurately transcribe trader conversations with **financial jargon** and **domain-specific** terms

#### Business Impact

- Redefined financial trading communications and compliance management
- Ensured **100% accuracy** for number transcriptions
- Achieved **95% accuracy** for trading parameter transcriptions



### EXTRACTING INSIGHTS USING KNOWLEDGE GRAPHS

A global provider of premium news content sought to **extract insights from large volumes of text documents** and examine relationships between different events and entities

#### Solution

A terabyte-scale unstructured data corpus was processed and a **Knowledge Graph framework** was designed to identify and visualize complex **network effects and relationships**

#### Business Impact

- **Synthesized 30+ years of unstructured news data** to assess the business impact of key events
- **Defined complex network efforts** to uncover hidden relationships and insights
- Unlocked **value in 1.3 billion news articles**



### VIRTUAL SCREENING OF MATERIAL DESIGN

A global industrial manufacturing R&D team needed a machine learning solution to determine the **friction performance** of materials used for **designing brake pads**, usually determined through expensive and iterative tests

#### Solution

A highly efficient virtual material testing framework, with minimum resource utilization, to conduct tests which accurately determine the performance of unstructured, high dimensional data collected over 20 years

#### Business Impact

- Achieved an **accuracy of 94%**
- Single test **duration reduced by 12 hours**
- Potential **savings of \$2M annually**