

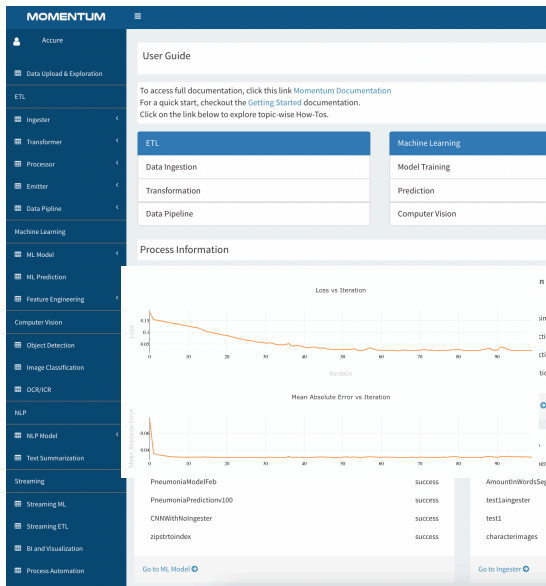


# **MOMENTUM**

**DATA SHEET**

# Momentum AI Platform

Momentum is a suite of software platforms that enables data engineers, scientists and analysts to efficiently solve machine learning problems and automate business processes.



## Democratize AI Development

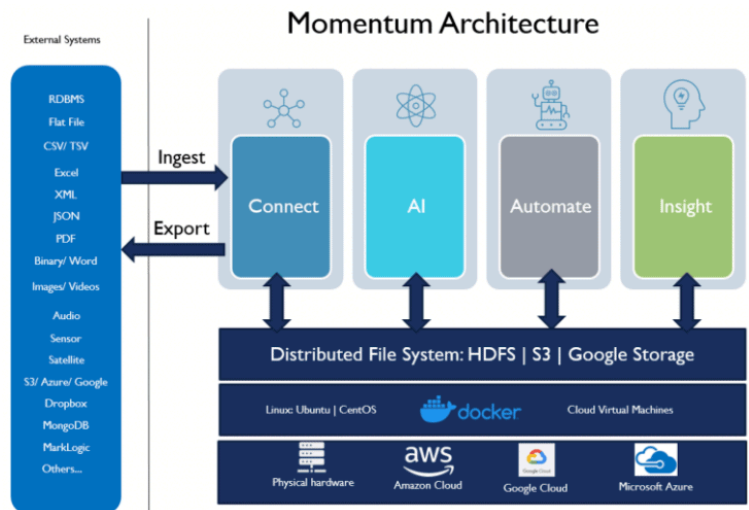
Momentum enables end-to-end enterprise automation without any third-party dependency.

1. A single platform with no coding, and a UI driven approach, builds complex automation tasks rapidly.
2. No third-party dependencies saves on license costs and avoids integration complexity.
3. No specialized skills are needed to work with the platform.
4. An enterprise scale data science platform to train machine learning, computer vision, AI and NLP models that enables intelligent automation.

## Momentum Architecture

To enable end-to-end enterprise AI powered automation, Momentum consists of the following four components:

1. **Connect** to perform a high speed Extract-Transform-Load (ETL) at enterprise scale.
2. **Machine Learning and AI** to rapidly solve machine learning problems by training and deploying models with UI-driven approach.



3. **Automate** allows business process automation using intuitive UI based drag-n-drop tools.

4. **Insight** to monitor, track and visualize AI outcomes in the form of graphs, charts and dashboards. It also provides a validation and verification workflow engine to manually correct anomalous outputs from AI models.



## What Does Momentum Help Do?



### Ingest

From all RDBMS, NoSQL, delimited, text, pdf, image, video, audio, sensor, satellite, Restful, medical image, S3, Google Cloud, Dropbox, and more.



### Transform

Highly scalable, simple, UI based engine to transform, merge, join, blend and filter all your data from multiple sources at scale and speed.



### Data Pipeline

Automate data ingestion, transformation, processing and exchange by building customized pipeline to work with data in realtime, scheduled or batch mode.



### ML & AI

With no-coding AI platform, perform automated feature engineering, train AI models and deploy them production.



### Computer Vision

Train and deploy image and video-based classification, object detection, and facial recognition models. Use pretrained and customize OCR/ICR models.



### NLP

Use or train models for language modeling, text summarization, POS, NER, sentiment analysis, document similarity and more.



### Automation

Create digital workforce by automating repetitive tasks. Utilize AI models to build complex business process automation using UI driven approach.



### Visualization

Visualize AI outcomes, monitor and track KPIs using intuitive web-based dashboard with graphs and charts. Perform validation and verification with customizable workflow.

## Platform Specification

### Data Sources

Momentum supports the following data sources for ETL input & output

- RDBMS: MySQL, MSSQL, Oracle, DB2, Postgres and all JDBC enabled RDBMS.
- NoSQL: Cassandra, MongoDB, MarkLogic, Solr, Elastic Search, and more.
- Structured Files: CSV, TSV, Text, XML and JSON
- Unstructured Files: Text, images, videos, audios, sensor and satellite data
- Distributed File System: HDFS, Google Cloud Storage, S3, and Dropbox
- Pluggable architecture to add more sources.

### BI Integration

- Momentum Insight
- Tableau
- Qlik
- Power BI
- Jasper
- Micro Strategy
- SpagoBI



## Built-in Transformation Functions

### Mathematical Functions

- a. round(), floor(),(), ceiling()
- b. rand(), exp(),ln(), log(),log2(), pow()
- c. sqrt(), hex(), unhex(), abs(), pmod()
- d. sin(), asin(), cos(), acos(), tan(), atan()
- e. degrees(), radians()
- f. positive(), negative(), sign()
- g. e(), pi()

### Date Functions

- a. from\_unixtime(),unix\_timestamp(), to\_date()
- b. year(), month(), day(), hour(), minute(), second(), weekofyear()
- c. datediff(), date\_add(), date\_sub()
- d. from\_utc\_timestamp(),to\_utc\_timestamp()

## Machine Learning Algorithms

### Supervised Regression

- a. Generalized Linear Regression
- b. Linear Regression
- c. Random Forest Regression
- d. Decision Tree Regression
- e. Deep Learning/ANN Regression
- f. String to Index Model
- g. Recurrent Neural Network Regression(LSTM)
- h. Gradient-Boosted Tree (GBT) Regression
- i. Survival Regression
- j. Isotonic Regression
- k. Factorization Machines Regression

### Aggregate Functions

- a. count(), sum()
- b. avg(), min(), max(), variance(), var\_pop(), var\_samp()
- c. stddev\_pop(), sdtdev\_samp()
- d. cov\_pop(), covar\_samp(), corr()
- e. percentile(), percentile\_approx()
- f. histogram\_numeric(), collect\_set()

### Conditional Functions

- a. if()
- b. COALESCE()
- c. CASE .. WHEN .. THEN .. END

### Supervised Classification

- a. Logistic Regression
- b. Decision Tree Classifier
- c. Random Forest Classifier
- d. Deep Learning/ Artificial Neural Network/ Multilayer Perceptron Classifier
- e. Markov Chain with Neural Network
- f. Convolutional Neural Network (CNN)
- g. Gradient-Boosted Tree (GBT) Classifier
- h. Linear Support Vector Machine (LSVM)
- i. Naive Bayes Classifier
- j. Factorization Machines Classifier



## Unsupervised Machine Learning

- a. K-Means Clustering
- b. Latent Dirichlet Allocation (LDA) Clustering
- c. Bisecting K-means Clustering
- d. Gaussian Mixture Model (GMM) Clustering
- e. Power Iteration Clustering (PIC)

## Natural Language Processing (NLP)

- a. Word2Vec
- b. Document Similarity
- c. Tokenization, Sentence segmentation, POS, NER and concept categorization
- d. Text Summarization
- e. Sentiment Analysis

## Recommender Engine / Collaborative Filtering using Alternating Least Squares

## Computer Vision

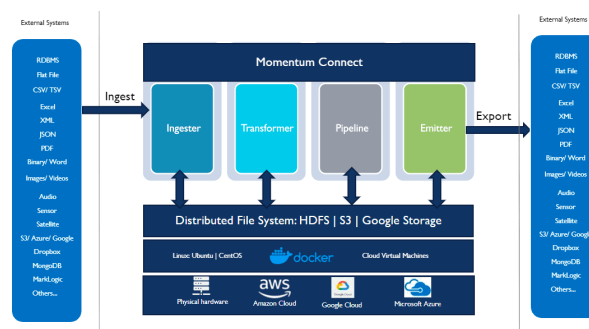
- a. LSTM for OCR and ICR
- b. Convolutional Neural Network (CNN)
- c. Object Detection Using Single Shot Multibox Detection (SSD)
- d. Object Detection Using YOLO
- e. Object Detection Using RCNN, Fast RCNN, and Faster RCNN
- f. Facial Recognition

## Feature Engineering

- a. Pearson's Chi-squared
- b. Correlation Coefficient - Pearson and Spearman
- c. SMOTE
- d. String to Index
- e. OneHotEncoder
- f. Imputer
- g. PCA

## Momentum As A Data Platform

Momentum Connect allows to automate data ingestion, transformation and processing by creating data pipeline using intuitive UI. In addition to streamlining data wrangling for machine learning, it also allows to build scalable data lake, that is resilient with built-in support for replication, fault tolerance, failover and high availability.





## Advanced Features

**Security:** Momentum cluster is deployed within a protected and secured network infrastructure.

**Privacy and Access Protection:** The data models, insights, and output level protection and access are managed through the role-based and sharing mechanism.

**Monitoring and Alerts:** Built-in support for data and process auditing for failure/success, system monitoring, notification and alerting.

**Optical Character and Handwriting Recognitions (OCR/ICR):** Momentum supports training custom models to recognize printed and handwritten texts in virtually all languages.

**Feedback for Retraining:** Momentum Insight provides a customizable web-based verification-and-validation (vnv) engine to pipe the anomalous output for manual correction. The manually corrected outputs may be given as feedback for the model to retrain and improve the accuracy.

## Getting Started with Momentum

Momentum is accessible via interactive web-based user interface. To access, sign up for an account by clicking the link: <https://impulse.accure.ai/register/>

We also provide Cloud Virtual Machines for sandbox and trials. Contact us at [info@accure.ai](mailto:info@accure.ai) for more information.

## About Accure, Inc.

Accure is an ISO-9001 certified software development company.

We provide software products and services to prototype, build, deploy and scale enterprise AI.

We engineered Momentum to accelerate all phases of AI development. Our professional services help connect all pieces together to build sustainable solutions so that our customers focus on deriving values from the AI implementation.

Our vision is to democratize AI for the greater good of society, planet earth, and beyond.

To learn more about Accure, please visit <https://accure.ai>.

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