



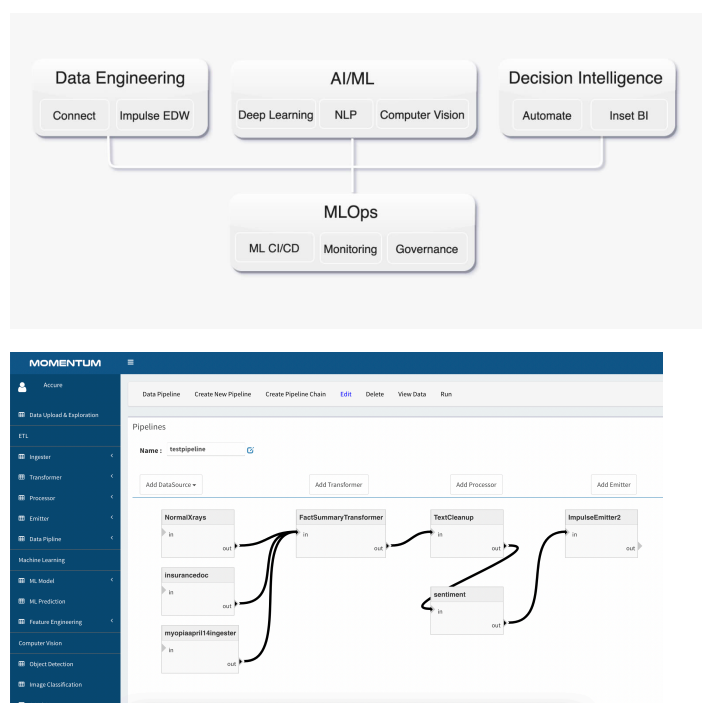
MOMENTUM

DATA SHEET



Momentum

Momentum is a data engineering and machine learning platform for engineers, scientists, analysts, and DevOps to streamline ML solution development, deployment, management, monitoring, and governance.



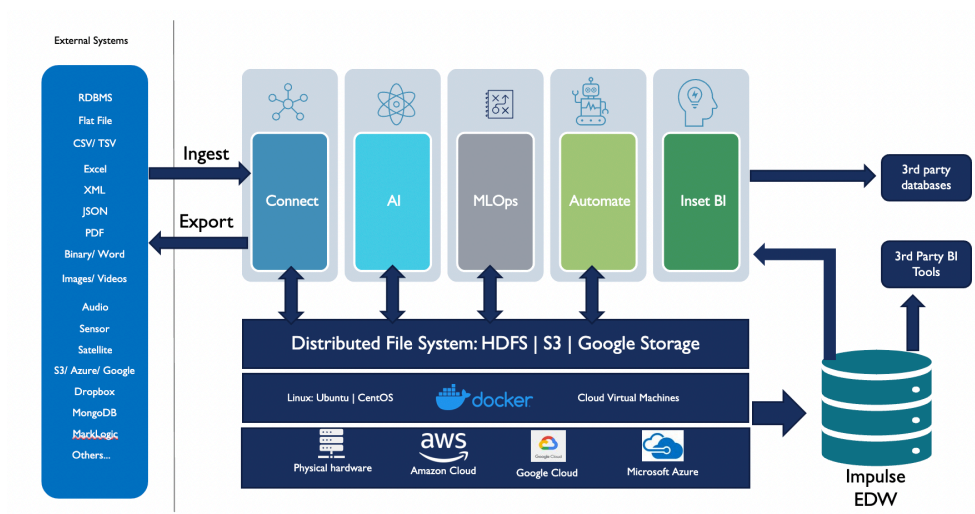
DEMOCRATIZED AI DEVELOPMENT

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

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

Momentum Architecture

Momentum is a suite of platforms and consists of the following modules that can be used individually or in combination as a fully integrated end-to-end platform to rapidly solve machine learning and automation problems:





Data Engineering (Connect): Streamline data ingestion from a wide variety of sources. Transform, clean, blend, and prepare data at scale for machine learning.

Machine Learning: Rapidly build solutions based on supervised and unsupervised machine learnings, including NLP, computer vision, and recommendation engine.

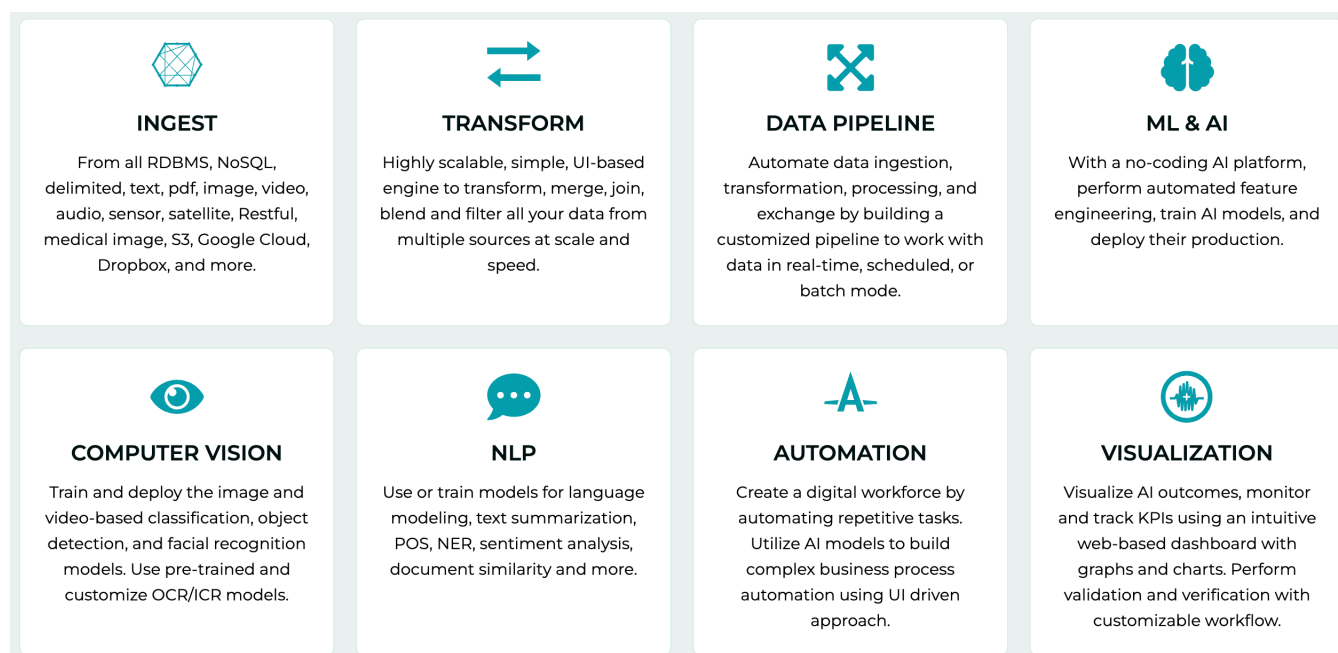
MLOps: Streamline deployment of ML models built in any programming language or tool. Automate CI/CD, model governance, monitoring, drift detection, and version control to save on time and cost.

Data Warehouse (Impulse): Supercharge your analytics with the Impulse OLAP solution that provides SQL compliant columnar database for your enterprise data warehouse, a database for millisecond query performance for big data.

Process Automation: A UI driven engine to build complex business automation tasks by sequencing ML models, OCR, ICR, computer vision and NLP models.

Decision Intelligence (Inset BI): Visualize AI/ML outcomes, monitor KPIs, build powerful dashboards, automate insight delivery and create alerts for what matters the most for your business with Inset BI, a web based decision support tool that gives visibility to your business.

What Does Momentum Help Do?



Data Preparation → Model Training → Deployment → Business Value → Monitoring



Platform Specification

Data Sources

Momentum supports the following data sources for ETL input & output

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

BI Integration

1. Inset BI
2. Tableau
3. Qlik
4. Power BI
5. Jasper
6. Micro Strategy
7. SpagoBI
8. Other JDBC or SQLAlchemy compliant BI tools.

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. Recurrent Neural Network Regression(LSTM)
- g. Gradient-Boosted Tree (GBT) Regression
- h. Survival Regression
- i. Isotonic Regression

Supervised Classification

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

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



Computer Vision

- LSTM for OCR and ICR
- Convolutional Neural Network (CNN)
- Object Detection Using Single Shot Multibox Detection (SSD)
- Object Detection Using YOLO
- Object Detection Using RCNN, Fast RCNN, and Faster RCNN
- Facial Recognition

Feature Engineering

- Pearson's Chi-squared
- Correlation Coefficient - Pearson and Spearman
- SMOTE
- String to Index
- OneHotEncoder
- Scaler and Normalizer
- Imputer
- PCA

Recommender Engine / Collaborative Filtering using Alternating Least Squares

Supported Transformer Functions

Mathematical Functions

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

Date Functions

- from_unixtime(),unix_timestamp(), to_date()
- year(), month(), day(), hour(), minute(), second(), weekofyear()
- datediff(), date_add(), date_sub()
- from_utc_timestamp(),to_utc_timestamp()

Aggregation Functions

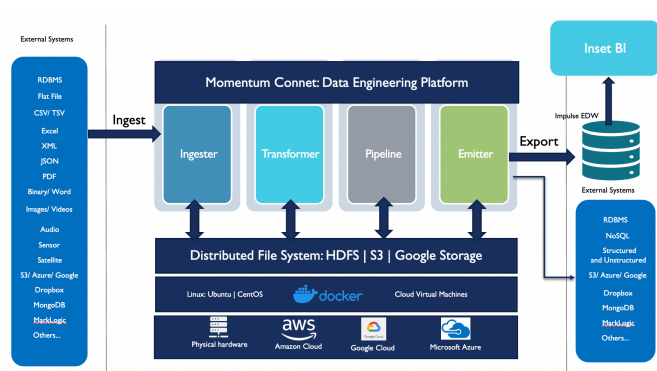
- count(), sum()
- avg(), min(), max(), variance(), var_pop(), var_samp()
- stddev_pop(), stddev_samp()
- cov_pop(), covar_samp(), corr()
- percentile(), percentile_approx()
- histogram_numeric(), collect_set()

Conditional Functions

- if()
- COALESCE()
- CASE .. WHEN .. THEN .. END

Momentum As Data Engineering 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. With Impulse enterprise data warehousing and OLAP solution, coupled with Inset BI, take analytics to production at large scale.





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: Builtin support for data and process auditing for failure/success, system monitoring, notification and alerting.

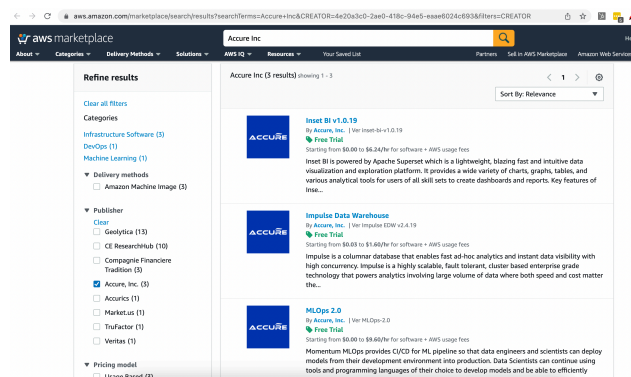
Optical Character and Handwriting Recognitions (OCR/ICR): Momentum supports training custom models to recognize printed and handwritten texts in virtually all languages.

Feedback for Retraining: Momentum Insight provides a customizable web based verification-and-validation (vnm) 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.

MLOPs: Deploy ML models trained using any programming language or tool, track and version control via Model Registry, monitor model performance and detect data drift.

Getting Started With Momentum

Momentum components are available on AWS Marketplace for trials as well as production deployment. On AWS Marketplace, search "Accure Inc" to see a list of all our products.



About Accure, Inc.

Accure is an ISO-9001 certified software development company. We provide data engineering and AI/ML platform and offer professional 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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