

Developing Smart Data Architecture for **Advanced Medical Imaging Research**



Real-Time

Pathology insights from AI-powered analysis of large-scale medical imagery and metadata

Scalable

Smart data architecture engineered to ingest and process massive



AI-Powered

Machine learning enables digital staining and anomaly detection directly within the data pipeline

SERVICES

-  Data Engineering
-  AI Solutions
-  Platform Engineering

TECHNOLOGY

-  Smart Data Architecture
-  Machine Learning Pipeline
-  Anomaly Detection
-  Medical Image Processing

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THE CHALLENGE

MilliporeSigma, a global leader in life sciences and biotechnology, is at the forefront of advancing digital pathology and AI-driven diagnostics. The growing volume of laboratory image data and associated research metadata created challenges for storing, processing, and analyzing information quickly enough to support real-time scientific insights.

OCI designed a Smart Data Architecture capable of supporting these demanding workloads — ingesting and managing large-scale medical imagery while connecting it with the contextual metadata needed for advanced analysis. Machine learning models perform digital staining and anomaly detection directly within the data pipeline.

Researchers and pathologists now access insights more quickly, accelerating diagnostic workflows and translating complex data into actionable information that improves patient outcomes.

THE SHIFT

BEFORE A lack of robust data architecture prevented effective analysis of vast research pathology data and large image files.

AFTER Real-time pathology insights and digital staining that drive operational efficiency in the lab.

BRIDGE A smart data architecture designed for anomaly detection and machine learning on large-scale medical imagery.

WHAT WE BUILT

FEATURES Smart data architecture with anomaly detection and machine learning capabilities for medical imaging.

ADVANTAGES Enables the ingestion and analysis of massive image files and metadata for real-time diagnostics.

BENEFITS Accelerates patient outcomes and drives operational efficiency by supporting AI-powered image recognition.



Engineered to **evolve.**

Three decades of mission-critical systems, engineered for performance and agility.

Let's Talk - hello@objectcomputing.com