COLSA

About COLSA

COLSA is a proven leader in innovative technologies that maintains our commitment to customer service above all else. Established in 1980, COLSA has remained stead-fast in our commitment to one goal: to serve the company's clients with dedication and excellence.

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Machine Learning Ops (MLOps)
Doing Data Science

Advances in computational science and data engineering are taking data science to increasingly higher and more impactful levels. Institutions need repeatable and simplified processes to deliver AI/ ML solutions for customers. The deployment of AI/ML based solutions presents unique challenges. A framework for solutions delivery must support a broad range of activities unique to data science from mission requirements analysis and data engineering to model development, deployment, and monitoring. AI/ML solutions are not fire and forget. There's a need to monitor and maintain model performance with respect to obsolescence and to counter malicious activity. In addition solutions must embody responsible AI and production must be able to scale. MLOps represents a framework for approaching the development and deployment of AI/ML based solutions which draws from the benefits and advantages of DevOps and accounts for the demands of data science.

At COLSA we employ automation, the use of open-source data and software, standardization, code reuse, interoperability, portability, and inherited security controls so that our data science team can focus on performing data science activities instead of inventing new ways to implement work products. With code reuse and the utility of high-level compute libraries, we can take the focus off what would be considered software engineering that software engineers do, to instead build successful machine learning and mathematical models which is what data scientists do.
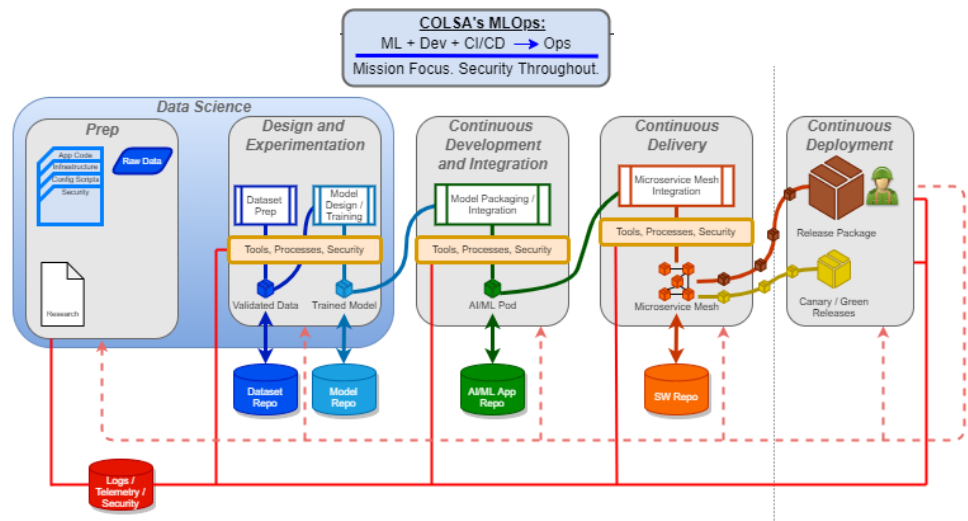
Data Science

From direct support on critical missions to leading-edge Research and Capability Development, Data Science at COLSA is driving solutions development to address the DoD and Intelligence Community's toughest challenges.

◆ **Data Analysis and computational sciences (Dacs) Lab**

◆ **Enterprise-wide Strategies for Data Science**

◆ **Data Engineering and Machine Learning Operations (Mlops)**

◆ **Knowledge Management Solutions**

◆ **Enhanced Signals Analysis**

◆ **Scientific Machine Learning**

Features

Automation
Simplifies experimentation, model development, versioning models, tools, and data, and takes the load off of the data scientists and machine learning engineer's shoulders.

Interconnectivity
Integrations with the integrated development environments, code repository, container repository, security systems, large data storage systems, monitoring systems, orchestrated and scheduled compute resources, software pipelines, and delivery targets.

Immutability
Versioning models, data, and software allow for repeatable and secured deliveries.

Inherited Security
Assets that have already been scanned, secured, encrypted or signed can be leveraged to decrease the security scanning requirements for minor modifications or additions, with the key benefit of enabling continual Approval To Operate (cATO) processes for rapid fielding.

Reuse
We reuse approved security controls, code, code templates, API templates, pre-processing tools, standards, integrated development configurations, deployment and packaging scripts/configurations, ML models, experiments, tests, containers, configurations, and infrastructure.

Infrastructure as Code
System configurations and documentation are defined as code so they can be versioned consistently with other project assets, to fully describe the versioned solution.

Ease of Delivery
Relying on consistent environments with exactly specified configurations allows for standardized delivery and employment of AI/ML capabilities for our customers.