Brillio Capability on AWS Machine Learning

Build, Train and Deploy Faster Than Before

AWS machine learning stack of services helps in solving some of the toughest challenges that hold back machine learning from being in the hands of developer.

The broad range of services include:

- **ML Services** - Build, train and deploy ML fast
- **AI Services** - Easily add intelligence to your applications
- **Frameworks** - Choice and flexibility with broadcast framework support
- **Compute** - Fastest and lowest-cost compute options
- **Analytics and Security** - Comprehensive capabilities, no compromise
- **Learning Tools** - Get deep on ML with AWS DeepRacer and DeepLens

Brillio’s expertise in Amazon SageMaker has helped customer resolve complex business problems with a high accuracy rate of about 85%.

The trainable model can be scaled up to 25 disease detection from 15 at present.

Benefits of AWS Machine Learning with Brillio

- Strong team of 100+ in house data scientists spread across US, UK and India
- Multi industry experience
- Brillio’s 3-pronged approach:
  - Build
  - Train
  - Deploy

Let the numbers do some talking:

<table>
<thead>
<tr>
<th>Time Saved</th>
<th>Cost Reduction</th>
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<tr>
<td>75%</td>
<td>70%</td>
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The Challenge:

Elevate X-ray disease detection capabilities by improving accuracy through Amazon SageMaker

About the client:

One of the leaders in pharmaceuticals industry, the client is a multi-national corporation employing over 20,000 people.

Solution:

- Our solution revolves around radiological diagnostics wherein the challenge was to ascertain the incidence of diseases by leveraging National Institute of Health (NIH) X-ray dataset.
- Getting X-rays diagnosed through Radiologists can be an expensive process both in terms of time and money.
- Also, the quality of diagnostics can vary a lot within different regions as the same quality of experts aren’t available uniformly.
- Our solution helped bridge and establish uniformity in terms of diagnostic standards while maintaining highly accurate and easily interpretable results.
- Problem statement at hand was to predict diseases from X-rays using a multiclass multilabel training data i.e. each X-ray potentially can have more than 1 disease.

AWS services used: Amazon S3 and Amazon SageMaker
The Challenge: Classification of Crystallization Outcomes

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What is Protein Crystallization:
Protein’s structure is crucial to the understanding of its functions and interactions with other proteins. Protein crystallography is the main technique used to obtain three-dimensional information for binary complexes involving protein and drugs.

Solution:
- Step 1: Data Preprocessing and Augmentation
- Step 2: Choosing Hyperparameters
- Step 3: Training and Prediction
- Step 4: Model Inference and Performance

AWS services used:
Amazon S3, Route 53, Cloud Front, API Gateway, SNS, Lambda and Amazon SageMaker

Benefits of Amazon Machine Learning:
- Open Platform
- API Driven
- Broad Framework Support
- Breath of Computing Choices
- Deep Platform Integration
- Comprehensive Analytics
- Highly Secure
- Economical
- On Demand

Why Brillio?
Brillio is an APN Advanced Consulting Partner and a leader in global digital business transformation. Brillio accelerates the enterprise transition journey to ‘digital first’ business with a suite of proprietary IPs and accelerators that leverage advanced technological capabilities of Intelligent Automation, Artificial Intelligence, and Cloud Analytics. Brillio’s experience of enterprise digital endeavors on AWS spans across Internet of Things (IoT), App modernization, Data lakes, SAP migration, Advanced Analytics, Modern Workspaces, and Data Center Migration.

Together with AWS Service Catalog, Brillio helps enterprise IT operations teams to bring in a secure, cost effective, scalable, and repeatable model of service delivery, revolving around a strong governance framework. With 2600+ experts worldwide, Brillio is the ideal partner for enterprises that want to quickly increase their core business productivity and achieve a competitive edge with the latest digital solutions.

About Brillio
Brillio specializes in leveraging emerging technologies like analytics, security, cloud, mobile, and machine learning. It uses this technology to create “sticky” new customer experiences, to achieve surprising cost efficiencies, and to quickly deliver innovative solutions. Working across different industries, Brillio has helped define digital transformation objectives and turn them into actionable market strategies.

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