Machine Learning Applications for Health and Human Services

Ensuring program integrity in Medicare fee-for-service and effective administration of Medicare, and Protecting the integrity of HHS grants[1] are among the top challenges facing the Office of Inspector General (OIG) at the Department of Health and Human Services. The OIG is harnessing program integrity tools, including data, to protect the program from fraud, waste, and abuse. HHS Secretary Alex Azar is a big believer in the promise of artificial intelligence (AI) and predictive analytics to turn big data into actionable insights[2].

While data and AI are natural allies to deploy in the battle against improper payments and fraud, success with AI is elusive. Surveys indicate that only one in three AI projects succeed. Projects are plagued by obstacles throughout their life-cycle. When problems are inadequately framed, it is difficult to attain a feasible solution. Manually building machine learning models of high predictive accuracy consumes months of work. Operationalizing AI by embedding it in existing or new systems has such a high rate of failure, that many more models are created than are put to work. Technology that generates "black box AI" makes it impossible for co-workers to understand the reasons driving predictions, creating a lack of trust that undermines confidence in the AI, resulting in a model's insights being ignored. When models are put into production, without ongoing monitoring, it is difficult to assure that they continue to perform as originally intended. These situations are compounded by the shortage of applied data scientists with technical expertise and public sector experience.

Success with AI is founded on matching an enabling technology with appropriate soft skills. The technology must span the Department to foster collaboration between everyone involved in creating and managing AI. This technology expands the capacity of existing analytics teams, by making the most of their skills and experience to raise their productivity. Domain experts who cannot code, collaborate in the same platform to create AI as do operations engineers charged with managing AI throughout its useful life. Soft skills required to succeed include: developing a competency in AI for many individuals with different skill sets and experience; encouraging collaboration and transparency across multiple teams; promoting motivation for process change; and establishing trust in the AI that colleagues create so teams learn to depend on it to create actionable insights and augment their decision-making. By adopting an enabling technology, while acquiring the requisite soft skills, the Department's analytics teams focus their attention on the most feasible use cases to solve challenging problems. Early momentum and repeated success ensure the Department achieves an advanced level of competency in AI.

DataRobot helps Government capitalize on the opportunities of AI, while avoiding obstacles that derail agencies attempting to realize the promise of AI with inappropriate or immature technologies. DataRobot offers the world's most trusted Enterprise AI platform, combined with trusted AI Success enablement, for skills transfer that is proven to help Government departments to deliver AI projects with positive results.

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[1] See https://oig.hhs.gov/reports-and-publications/top-challenges/2018/

[2] See https://www.healthdatamanagement.com/news/azar-free-flow-of-data-price-info-is-what-healthcare-needs

AI to reduce improper payments and protect against fraud

Medical fraudsters constantly evolve their tactics requiring HHS to continuously adjust their defensive responses. DataRobot accelerates the rate at which the Department can modify existing machine learning models, or create new ones, and put these to work to uncover new and emerging threat vectors in huge volumes of medical claims. The AI created with DataRobot is transparent, explainable and defensible so staff at the frontline understand and trust the insights it generates to take effective actions. DataRobot helped HealthFirst save over $180M with just two use cases (Fraud detection and Healthcare Effectiveness Data and Information Set optimization). With AI, HHS can prevent fraud before it occurs and eliminate costs of unnecessary investigations.

AI to protect the integrity of HHS grants

Given the scale of HHS' grant programs – greater than 98,000 grants to more than 12,000 recipients annually – the Department can analyze their trove of data to enable effective oversight of its grant review and management processes. Analyzing the outcomes of programs previously granted funds, supports prediction of the types of projects or grant programs exhibiting high propensity of beneficial outcomes and can close down sources of potential loss, by identifying patterns of felonious behavior to combat fraud.

98,000 GRANTS → **12,000 RECIPIENTS**
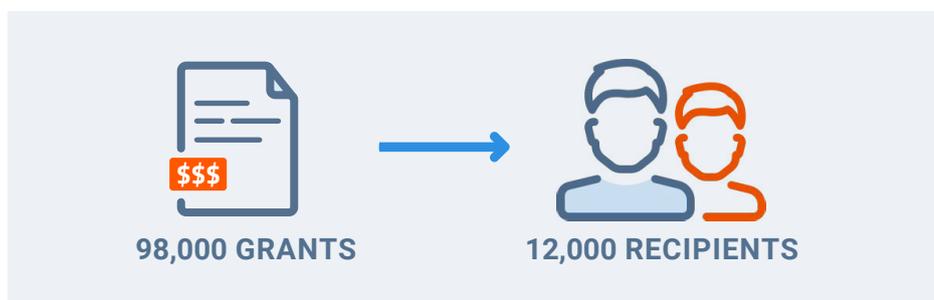
AI to improve program management

For HHS' programs to deliver their intended outcomes, it requires program managers to collect and analyze data from multiple interrelated projects. AI supports Department staff in program leadership and governance, project planning, managing and monitoring. Machine learning reduces project risk and uncertainty by predicting duration of tasks and verifying against actual time required, forecasting staffing and supply utilization to optimize scheduling, identifying bias such as overly optimistic work schedules, recommending where scarce resources are best allocated, and generating metrics indicative of the health and progress of a program.

Monitoring the effectiveness of new injury prevention programs

New programs developed using insights gleaned from analysis of historical data can be monitored to ensure their effectiveness and can be refined to drive constant reduction in injuries and their consequences.

Contact the Public Sector sales team at DataRobot to learn more:
public-sector@datarobot.com.

Datarobot Helped Healthfirst Save Over

$180 MILLION

WITH JUST

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