

Hyperparameter Optimization on AWS with SigOpt

Increase the accuracy and accelerate the tuning of your machine learning and simulation models to amplify your research

SigOpt is an AWS Advanced technology partner with the AWS Machine Learning competency.



Challenges: The problem with most model-tuning approaches

Machine Learning and Artificial Intelligence hold the key to solving some of our most complex problems, but implementing a machine learning model that delivers results without exorbitant costs or overconsumption of IT resources can be a daunting task. Most organizations will attempt to use one of the following approaches to hyperparameter optimization:

- Grid searches, which explore every possible configuration, wasting an astronomical amount of time and computational resources
- Randomized searches, which are entirely reliant on luck and finding the right combination of parameters by chance
- Manual tuning, which uses excessive amounts of data scientists' valuable time and distracts them from their primary tasks

While these methods can deliver improvements, they all increase the costs and R&D hours that go into your model and reduce accuracy, which causes you to leave revenue on the table.

Benefits of SigOpt on AWS



Improve ML models 100x faster

Leverage state-of-the-art Bayesian optimization



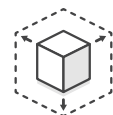
Use existing tools

Bolt SigOpt onto your existing deep learning tools



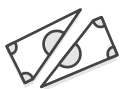
Focus on what matters

Let your data scientists focus on building models, not tuning them



Scale up and down on-demand

Support projects of any size with scalable SaaS solution



Reduce costs

Minimize the waste of computational and personnel resources



Keep your data and models secure

Protect your critical data with black box optimization

Customer Ready Solutions

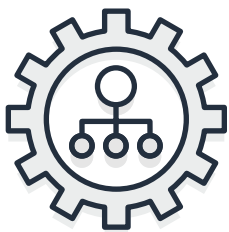
Discover scalable solutions that help you achieve your business needs through a combination of AWS services and APN Partners that have attained AWS Competency designations. Based on architectures validated by AWS to accelerate your cloud transformation, you can deploy solutions quickly with AWS Quick Starts and optional Jumpstart consulting offers provided by APN Partners.

[Visit here for more information.](#)

Optimizing your hyperparameters the smart way



SigOpt is a SaaS optimization platform that takes any research pipeline and tunes it, right in place, boosting your business objectives. Through a simple interface that allows you to define your objectives, SigOpt provides a feedback loop that will maximize the output of any process with multiple interacting parameters. It is designed to work with any machine learning tool, and you can upload your data using REST API, a web interface, or by submitting historical data as a CSV file. SigOpt can accelerate modeling and simulation in a wide variety of industries, including finance, manufacturing, marketing and advertising, energy and utilities, engineering, and more. You only need to send SigOpt the parameters that define the configuration of your model or simulation and the objective that you wish to maximize—you maintain the core experimental and/or training data.



Bringing together an ensemble of the latest advancements in academic optimization research, SigOpt finds optimal parameter configurations for experiments quickly and efficiently, so you can focus on building great models—not tweaking and tuning them. SigOpt is built on top of open source optimization systems and offers templates that enable you to integrate it with MXNet, TensorFlow, Caffe2, and **other popular machine learning and deep learning frameworks**. It tunes multiple parameters in unison, which is more effective than tuning each individually. Leveraging historical performance, SigOpt will suggest new configurations of your parameters to help you continuously refine your model for optimal results. To help keep your data and models secure, it leverages black box optimization. This means that SigOpt doesn't look at your underlying data—just the inputs and outputs that are needed to determine how your model is performing and the configuration changes that are recommended.

Getting Started

SigOpt can help any organization that needs to tune a product or service through trial and error. It is delivered through a software-as-a-service (SaaS) model that enables you to deploy quickly and pay only for what you use. Two programs are available:

- *Enterprise plans* provide full access to enhanced training and tuning solutions for any model
- *Request a free trial* to see if SigOpt is a good fit for your team

SigOpt can be deployed from AWS Marketplace, rolling directly into your AWS bill, and takes less than 15 minutes to setup.



About AWS: For 10 years, Amazon Web Services has been the world's most comprehensive and broadly adopted cloud platform. AWS offers over 100 services for compute, storage, databases, analytics, mobile, Internet of Things (IoT) and enterprise applications from 49 Availability Zones (AZs) across 18 geographic regions in the United States, Canada, Europe, Asia, Australia and South America. AWS services are trusted by more than a million active customers around the world – including the fastest growing startups, largest enterprises, and leading government agencies – to power their infrastructure, make them more agile, and lower costs. To learn more about AWS, visit <http://aws.amazon.com>.

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