IBM Consulting, US Federal Market

Hatteras

Adaptive AI at scale and at the edge

Deploying and maintaining machine learning (ML) models is a challenge for federal civilian agencies, health agencies, defensive forces and first responders leveraging the power of AI in dynamic environments.

Hatteras is the full-spectrum ML Operations (MLOps) platform that empowers organizations by facilitating the construction and deployment of ML models. More importantly, it enables for these models to be retrained, even at the tactical edge where there's less connectivity, compute, or space, and where end users tend to possess less technical expertise.

Hatteras also protects models from decay by retraining them through a simple interface, enabling end users regardless of their technical skills. Backed by AI and fully adaptable, Hatteras is Red Hat® OpenShift® ready for cloud scalability and is deployable on low size, weight and power (SWaP) devices—even in environments with little or no connectivity.

Key features

- **Universal applications:** Hatteras monitors ML models and remediates them when they start to decay. It’s customizable to meet a broad range of use cases across many verticals.
- **Health data analysis:** Health agencies requiring models for disease prediction, health trend analysis and biomedical research can benefit from Hatteras. Plugins and integrations can meet the unique needs of health data formats, databases and bioinformatics tools.
- **Customs and border protection analytics:** Hatteras can be implemented to enhance operations through plugins customized for surveillance systems, biometric databases and other security data sources. Law enforcement agencies can build models for threat detection, human trafficking prevention and contraband identification.
- **Renewable energy optimization:** Hatteras can be used by federal labs and energy agencies for building models that optimize grid integration of renewable energies. Energy management systems, weather prediction data and smart grid technologies can be developed and integrated, enabling efficient energy distribution and consumption forecasting.
- **Pollution monitoring and compliance:** Agencies can use Hatteras for developing models that monitor environmental quality and ensure regulatory compliance. Plugins for real-time data streams from air and water quality sensors, as well as integrations with regulatory databases, can support pollution tracking and environmental impact assessments.

Retraining and maintenance:
Hatteras triggers retraining to maintain ML model performance and support data integrity, helping to defend the ML models against adversarial attack.

One tool:
Hatteras allows users to iteratively develop ML models, deploy custom and existing models, and monitor and continuously train models—all through one tool.

Open source:
Hatteras embraces open-source frameworks and integrates open-source tools with permissive licenses. It prevents vendor lock-in, even if personnel changes.

User-centric:
Hatteras empowers users to deploy models through an intuitive user interface, no advanced training necessary.

Operate on the edge

IBM **oLabs™** Hatteras was developed by IBM oLabs. oLabs is home to a team of data scientists, ML engineers, academics, and special operations Veterans focused on operationalizing mission-specific AI and emerging technology solutions for the US Government.

oLabs features a highly experienced cadre of technical solution architects who provide reachback support to ensure their customers' solutions are scalable to meet rapidly evolving needs and technological advances. To learn more, visit ibm.com/oLabs.

Space data analytics
Hatteras can facilitate the development of models for space mission data analysis, earth observation, planetary science and more. Tailored with plugins, it can process and analyze satellite imagery, space mission telemetry and astronomical datasets. Hatteras is especially applicable when these tasks must be carried out by personnel operating at the "cosmic edge" where storage, compute, bandwidth and other resources are limited.

Transportation efficiency and safety
Federal agencies can use Hatteras to build models that improve transportation safety, efficiency and infrastructure management. Custom integrations with air traffic control systems, vehicle telemetry data and infrastructure monitoring sensors can support traffic prediction, route optimization and safety monitoring.